

EXPLORING THE DEVELOPMENT OF SELF-COMPASSION IN THE WORKPLACE

AMANDA SUPER

Kingston Business School

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Supervised by

Rachel Lewis and Joanna Yarker

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OVERALL ABSTRACT

Stress levels experienced by individuals in the workplace are highly prevalent and well documented. Self-compassion has been suggested as an approach that may support the health and wellbeing of individuals and enable them to stay well at work. Self-compassion is understood as, compassion directed inward, relating to oneself as the object of care and concern when faced with difficulty (Neff, 2003b). There is a growing body of research suggesting that interventions to develop self-compassion may impact positively on the health and wellbeing of a working population. The first study in this thesis, a systematic literature review, seeks to consolidate this literature in order to examine the potential benefits of interventions to develop self-compassion in workplace-based samples. This review was conducted using a systematic approach as outlined by Briner and Denyer (2012) which included several sifts of the resultant literature. Following this protocol, the review identified 12 studies that met the inclusion criteria which showed promising evidence to suggest that self-compassion can be developed and benefit the health and wellbeing of employees. The included studies varied in content, delivery mode and quality which hindered firm conclusions being drawn as to the most effective intervention. The studies also offered limited insights in terms of the mechanisms that may increase self-compassion and improve health and wellbeing. Interestingly, only four of the 12 included studies considered an intervention that explicitly focused on the core components of self-compassion (self-kindness/common humanity/mindfulness) as defined by Neff (2003b).

Healthcare professionals are well documented in the literature as experiencing high levels of stress and burnout accompanied by reduced mental wellbeing. The second study in this thesis looked to test a novel, self-guided online intervention developed by the author based on the three core components of self-compassion; and assess the efficacy of the intervention on the health and wellbeing of a healthcare professional

sample. Building on the study limitations identified in the systematic review, this study employed a randomised controlled trial. The study aimed to evaluate the veracity of the intervention by considering mental wellbeing, stress and burnout variables, and the self-compassion levels of participants, pre, post and one-month following their attendance on the programme. The healthcare professional sample (n=230) was drawn from several NHS Trusts around the UK and of these, 190 participants completed the baseline measures. To ensure robust evaluation of the intervention, a randomised waitlist control trial design was utilised. The results showed that the intervention group (n=54) significantly improved on measures of self-compassion (including the six additional subscales), mental wellbeing, stress and burnout immediately after the intervention and that these improvements were maintained at one-month follow up relative to the waitlist control group (n=60). These findings suggest that the intervention utilised in this study shows promise in terms of developing self-compassion and benefitting the health and wellbeing of a healthcare professional population. The implications of the study findings, for both research and practice, are discussed.

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PROFESSIONAL PRACTICE

As a Chartered Occupational Psychologist, I am exempt from the first module (Professional Practice Portfolio) of the Professional Doctorate. This thesis therefore satisfies the requirements for Part 2 of the doctorate (Research Thesis). I provide a summary of my professional practice as a context to this thesis.

Since completing my MSc in 2004, I have continued to build my knowledge and skill through developing my professional practice. This initially culminated in my acceptance for Chartered status in early 2009. Since that time, I have continued to develop as a practitioner and have provided occupational psychology services to a range of public sector clients through my consultancy work. Since 2013 I have applied a growing understanding and appreciation of the study of self-compassion to my work in leadership and staff development. In 2015 I published a reflective journal that supports the reader through a year of self-compassion development. All the work I undertake is based on the best practice advocated by The British Psychological Society. To my great delight, I have become regarded as a key practitioner in the UK for designing and delivering workplace-based self-compassion coaching interventions on behalf of NHS Leadership Academies to senior staff. I also deliver presentations to NHS Boards and workshops at various health and social care practitioner conferences on the theory and practice of adopting a self-compassion approach. The Self-Compassion at Work Programme is gaining traction and being used as part of several NHS organisations' health and wellbeing strategy for staff and I am in discussions with other public sector organisations (e.g. police service) to bring this online programme to wider groups and stakeholders.

The link between my Professional Practice to the undertaking of the Professional Doctorate has been profound for me. The journey has enabled me to ensure all my work is based on the most recent research evidence in the field of self-compassion development and to continually

ensure that this is applied in a robust manner to a working population. I have actively engaged with the academic literature in this field and have become fully conversant with the need to ensure all our work, as occupational psychologists, is underpinned by strong scientifically evaluated foundations. I will continue to apply this learning as I continue to deliver interventions which aim to increase self-compassion in a working population and to the leadership development interventions I design and deliver to public sector organisations.

PUBLICATIONS ARISING FROM THIS THESIS

Conference presentations:

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EXPLORING THE EVIDENCE FOR THE DEVELOPMENT OF SELF-COMPASSION IN THE WORKPLACE: A SYSTEMATIC REVIEW

ABSTRACT

Stress is increasingly recognised as a key issue affecting the health and wellbeing of employees across all sectors and industries in the developed world. Self-compassion interventions have started to gain traction to defend against stress and enhance psychological wellbeing and are increasingly used in workplace settings. This systematic review has been conducted to assess the development of self-compassion specifically in relation to a working population. This review identified twelve studies that investigated the impact of various training programmes that looked to have an impact on the development of self-compassion at work.

Interestingly, none of the included studies considered developing self-compassion as the single focus for any of the interventions implemented, with nine of the twelve programmes being broadly based on developing a mindfulness approach. The effect sizes and significant thematic findings are reported for the relevant outcome measures. The results considered the dependent variables in two broad categories, self-compassion specifically as well as a combination of mental health, subjective wellbeing and psychosocial outcomes. The findings indicated that all the training programmes delivered an increase in self-compassion across time as well as improved the level of reported stress. The quality of the included studies varied. Due to the lack of consistency in design, content and implementation, firm conclusions as to the interventions which have the greatest efficacy and veracity cannot be drawn at this time. Future research should consider interventions that are solely focused on developing self-compassion in the workplace, ensuring that comparative designs and delivery modes are implemented to achieve consistency and therefore allow more definitive assessment and appraisal. Implications for practice are considered.

KEYWORDS: Self-compassion, working population, workplace, stress management, systematic review

PRACTITIONER POINTS:

- Interventions that incorporate self-compassion development show some promise, in terms of beneficial outcomes for a working population, particularly in relation to stress.
- Most interventions are based on developing mindfulness, of which self-compassion may be a mediating factor. However, further research is required to consolidate the effects of self-compassion focused development interventions delivered to a working population.
- At this point in time, there is a lack of definitive evidence for the most effective training content or format to deliver self-compassion development in the workplace. Further innovation is required in terms of content, duration and delivery modes.

INTRODUCTION

Background

The workplace is a source of significant stress that contributes to an array of physical and psychological disorders (Beehr, 2014; De Jonge & Dormann, 2017; Ganster & Rosen, 2013). When considering interventions to mitigate the challenges faced by employees in the workplace, it is prudent to consider approaches that can assist the individual employees to care for their health and wellbeing as well as engage with those encompassed by a wider organisational strategy.

Wellbeing has been defined as a balance between the social, physical and psychological resources individuals have at their disposal to meet the challenges they face (Dodge & Daly et al., 2012) and can be conceptualised as operating on a spectrum between high and low wellbeing (Hall & Johnson et al., 2016). It is not surprising, given the broad definition, that there are a growing number of approaches to protect and improve wellbeing in the workplace. Similarly, resilience can be understood as the ability to protect and sustain wellbeing in the face of adversity (Robertson & Cooper et al., 2015) and has been defined as 'being able to withstand or recover quickly from difficult conditions' (Soanes & Stevenson, 2006, p. 1498). Thus, there is growing interest in developing approaches in the workplace to counteract the impact of an increasingly challenging workplace environment and improve employees' wellbeing and resilience.

Compassion is defined in the Oxford English Dictionary as "suffering together with another" although it is broadly understood throughout the literature to be understood as feeling for a person who is experiencing suffering and being motivated to assist (Strauss et al., 2016). More recently, compassion has been defined by Gilbert (2017a) as 'sensitivity to suffering in self and others with a commitment to try to alleviate and prevent it' and from this premise, acting on an intention to be 'helpful and

not harmful' (Gilbert, 2017b; Gilbert, 2018) in all our activities, including in the workplace.

Worline and Dutton (2017) suggest that compassion is a unique aspect of excellence for any organisation that wants to fully harness its human resources and create an organisational climate of care to allow and encourage employees to fulfil their true potential. It has been suggested that self-compassion, compassion directed towards the self (Neff, 2003b), may help individuals to remain healthy and well in work, despite the challenges they may encounter in the workplace (Duarte et al., 2016; Finlay-Jones et al., 2017; Raab, 2014).

A number of studies have demonstrated the benefits of developing the self-compassion of staff (eg. Bazarko et al., 2013; Marx et al., 2014; Mulla et al., 2017; Shapiro et al., 2005). There is growing evidence that self-compassion builds resilience against depression and anxiety and improves satisfaction with life (Raab, 2014), improves wellbeing (Duarte et al., 2016) and protects against stress (Macbeth & Gumley, 2012). Furthermore, these findings have been found in a range of populations (see Barnard & Curry, 2011b; Zessin et al., 2015 for reviews).

However, in this evolving landscape there is a need to understand the role self-compassion interventions, specifically focused on a working population, can play. The aim of this systematic review is to consider the ways in which self-compassion has been developed to benefit individuals at work and the outcomes of the most current and relevant research.

What is self-compassion?

Kristin Neff's pioneering research into the construct of self-compassion, built on the foundations of Buddhist philosophy, considers compassion for self equally as important as compassion for others. Self-compassion is understood as, compassion directed inward, relating to oneself as the object of care and concern when faced with the experience of suffering (Neff, 2003b).

Neff (2003b) proposes that self-compassion is based on three key elements: self-kindness which encourages a caring and supportive approach towards the self as opposed to being harshly critical in times of challenge; common humanity which enables an appreciation of our similarity as human beings as opposed to seeing ourselves as isolated from others when we experience the adversity of life; and mindfulness which supports the concept of acceptance of our emotional state in the present moment, without extending judgement, as opposed to automatically reacting to our thoughts and emotions through over-identifying with them.

Mindfulness, as a stand-alone construct, is increasingly employed to support employees' wellbeing in the workplace through a set of distinct, set protocols. In a review, Jamieson and Tuckey (2017) found that mindfulness interventions are a useful resource for facilitating employees' health and wellbeing while Donaldson-Feilder, Lewis and Yarker (2018) reported promising indications that mindfulness interventions with managers and leaders benefit wellbeing and performance. A review of the empirical literature suggested that mindfulness is generally associated with positive outcomes in relation to most measures of occupational wellbeing (Lomas et al., 2017). This approach is supported by the model of workplace resilience proposed by Rees et al. (2015) which highlights the importance of mindfulness as an adaptive process that enables more balanced appraisals of stressful events. It is important to point out that Duarte and Pinto-Gouveia (2017) argue that, "there is some conceptual overlap between mindfulness and self-compassion in that both involve turning toward painful experiences with an accepting attitude so that maladaptive processes of reactivity are lessened" (p. 126).

Although Neff and Dahm (2015) recognise that self-compassion and mindfulness are operationally similar, as a total construct, self-compassion is broader in scope than mindfulness as it includes the additional elements of self-kindness and common humanity and these are

not qualities that are specifically or inherently part of mindfulness practice (Bishop et al., 2004). Self-compassion relates to the person who is suffering and wanting to be free of suffering by actively soothing the self when painful experiences arise through the act of self-kindness and by recalling that such experiences are a normal part of being human through the recognition of common humanity (Neff & Dahm, 2015) whereas mindfulness relates solely to the internal experience of the individual (Germer, 2009) to bring a balanced awareness of thoughts and feelings.

In practice, interventions that specifically look to develop self-compassion draw on a range of practices relating to the conceptually distinct three core components of self-compassion as defined by Neff (2003b) including self-kindness, common humanity and mindfulness. However, the focus of this review will be to understand more fully and coherently the variety of interventions in the workplace that rely on the teaching of mindfulness and/or compassion but have measured self-compassion as a subsequent outcome variable.

The benefits of self-compassion

Self-compassion has been reported as being associated with decreased psychopathology and increased wellbeing in both adults and adolescents (see MacBeth & Gumley, 2012; Marsh, Chan & MacBeth, 2017 for meta-analyses). Studies conducted in general settings have shown that self-compassion can promote wellbeing, increase optimism and happiness and increase a sense of connection to others (Jazaieri et al., 2013; Neff, Kirkpatrick & Rude, 2007; Neff & Pommier, 2013), while an experimental study conducted by Adams and Leary (2007) found self-compassion reduced psychological distress. Furthermore, Neff and Dahm (2015) argue that self-compassion may be a stronger predictor of depression, happiness, life satisfaction and psychological wellbeing than mindfulness alone.

There are indications that self-compassion can act as a protective factor against a wide range of workplace stressors including, emotional exhaustion and burnout in healthcare professionals (Raab, 2014; Duarte et al., 2016; Rao & Kemper, 2017). In workplace settings, self-compassion has been shown to increase emotional intelligence and provides support to deal with daily anxiety and concerns amongst nursing staff (Heffernan et al., 2010). Given the high incidence of stress and anxiety in the workplace, self-compassion may be a useful construct to support the health and wellbeing of staff in the workplace.

Interventions to develop self-compassion

Self-compassion interventions have been seen to be equally as effective as other behavior change techniques at improving self-regulation of health behaviours in a general population. In their review, Biber and Ellis (2017) found that self-compassion training impacts psychological, emotional and physical wellbeing. Bluth and Neff (2018) suggest that the skills of self-compassion can be learned via targeted interventions (eg. Bluth et al., 2016; Neff & Germer, 2013) and Voci et al. (2016) found that workplace wellbeing could be promoted by training employees to be self-compassionate. This is further supported by a meta-analysis of compassion focused interventions in general settings by Kirby et al. (2017) which highlighted the potential of compassion-based interventions on a range of outcomes, particularly in relation to psychological health and wellbeing. In their conclusion however, the authors acknowledged that the evidence base relied predominantly on small sample sizes and that a number of the methodological and reporting aspects of the included studies would have benefitted from being conducted with greater rigour. Additionally, self-compassion interventions conducted with healthcare providers considered in Sinclair et al.'s (2017) review were suggested as having a broader effect on general affective states rather than cultivating self-compassion. That being said, randomised controlled trials have shown that self-compassion is a teachable skill in a variety of populations (see

Halamova et al., 2018; Jazaeiri et al., 2013; Krieger et al., 2018; Neff & Germer, 2013).

The majority of self-compassion research originates from a health and clinical psychology perspective and, when employees are considered as subjects, these have been predominantly drawn from the healthcare profession (e.g. Boellinghaus et al., 2014; Duarte et al., 2016; Eriksson et al., 2018; Heffernan et al., 2010; Rao & Kemper, 2017).

The present study:

Rationale for the review

Whilst self-compassion shows promise as an approach on which to base interventions delivered in the workplace (Finlay-Jones et al., 2017), to the best of this author's knowledge, there have been no previous systematic reviews conducted to assess the specific development of self-compassion in workplace settings. While there have been some reviews of self-compassion interventions (e.g. Kirby et al., 2017), these have focused on general settings with little consideration of the workplace and work-relevant outcomes as yet. Given the increasing interest in self-compassion at work, particularly within healthcare settings, there is a need to understand whether the benefits transfer.

Due to the inherent variability in self-compassion interventions to date, it is important to synthesise the findings with a view to clarifying 'what works for whom and under what circumstances' as suggested by Pawson and Bellamy (2006) with a particular emphasis on what 'works' means in this context. Specifically, the goal of this review is to identify interventions that aim to increase self-compassion in a working population and to synthesise their effects. This will allow the opportunity to provide recommendations for subsequent self-compassion interventions and future research.

Statement of primary objective

This review aims to examine the question:

What is the evidence to support the development of self-compassion in a working population?

Specifically, this review seeks to answer two questions:

- i) What are the interventions that have been used to develop self-compassion in a working population?
- ii) What are the outcomes of interventions that aim to develop self-compassion in a working population?

METHOD

Search strategy

This review was conducted using a systematic approach as outlined by Briner and Denyer (2012) and as applied by Donaldson-Feilder, Lewis and Yarker (2018). The review protocol was registered with Prospero.

The search terms utilised in this review were informed by a preliminary appraisal of the self-compassion literature during December 2017 and January 2018. The database selection and search terms were informed by existing reviews and meta-analyses in the subject area and through discussion with colleagues and academic supervisors.

It was decided to include the term 'self-kindness' as this has been used to describe a key aspect of self-compassion in the titles of relevant literature and as a key word. The search parameters were (SELF-COMPASSION OR SELF-KINDNESS) AND (WORK* OR EMPLOY* OR ORGANI*). Where work* enables broader inclusion of worker, workplace, working; employ* employer, employee, employment; and organi* organisation, organisations, organisational.

In February 2018, a computerised literature search of Proquest's ABI/Inform Global Collection, Business Source Premier (EBSCO), CINAHL, PsycINFO, SCOPUS and Web of Science was conducted using the search parameters, between the years 2003 (the year Neff introduced the term self-compassion to the literature) and 2018. The search solely considered peer reviewed journals and published articles and those only presented in the English language. To identify any additional published studies, the author also undertook hand searches of reference lists in related articles and reviews and included additional studies as a result (see Review strategy for further detail). This review was registered with PROSPERO and accepted in May 2018.

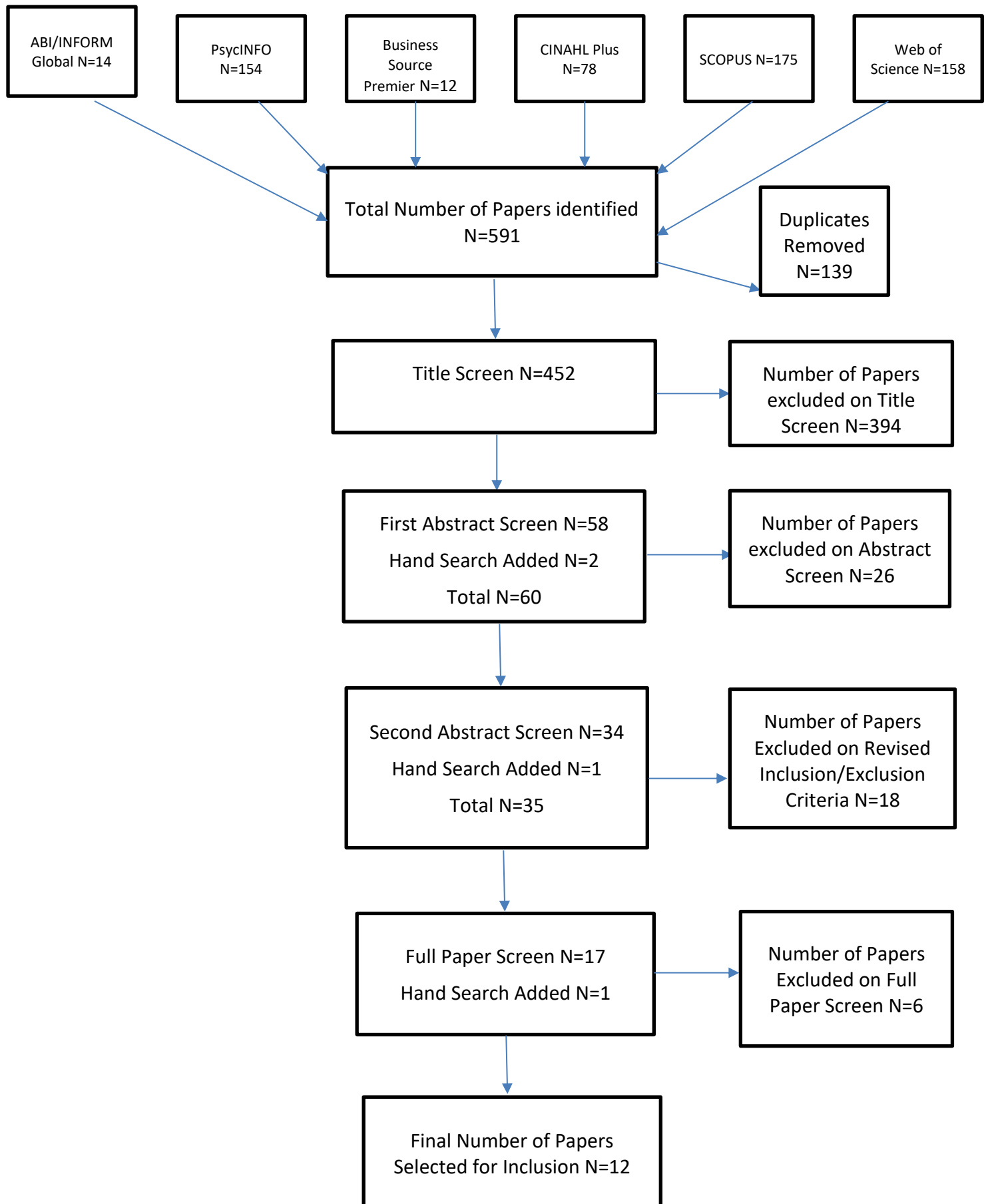
Review strategy

Once the initial searches had been conducted, the results were collated in the software reference management tool Refworks, duplicates were then removed, and the list was exported into a text file. A broad screen was conducted on the retrieved records whereby the initial title sift was undertaken independently by the author and second researcher, with any discrepancies moderated by a third researcher and disagreements resolved through discussion. Titles were retained if the studies placed a focus on self-compassion and were conducted in a workplace setting. A conservative approach was taken such that where it was not clear the titles were retained for further screening. Retained records were then considered at the narrow screening stage. Additional papers were added by a hand search by the author.

The author and second researcher independently conducted the first abstract sift, with any discrepancies moderated by a third researcher with disagreements resolved through discussion. At this stage of the screening process, it was suggested and agreed that the inclusion exclusion criteria were refined so as the second abstract sift related solely to intervention studies. Therefore, a second abstract sift was independently undertaken by the author and second researcher, with any discrepancies moderated by a third researcher. In agreement, a number of articles were excluded from the screening process as they were not reporting on an intervention study or no longer fulfilled the adapted inclusion criteria which ensured that there was sufficient focus on self-compassion in the intervention being considered. An additional paper was added via a hand search by the author.

The full paper sift was conducted independently by the lead author using an excel spread sheet, which was then discussed and agreed with the two further researchers and a number of studies were excluded. A further paper was added by the author through a hand search. The resultant screening process is depicted in Figure 1.

Figure 1. Search results flow diagram



Selection of papers for inclusion

Studies were selected for inclusion on the basis of criteria related to Study design, Participants, Interventions and Outcomes (SPIO). SPIO is a variation on PICOs (Population, Interventions, Comparison, and Outcomes; Richardson & Wilson et al., 1995) as employed by Robertson et al. (2015). At each stage of the screening process, all articles were reviewed against the inclusion and exclusion criteria shown in Table 1.

Table 1. SPIO narrow screen inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
Study Design	All empirical evidence both quantitative and qualitative reported in peer reviewed journals	All designs excluding cross-sectional Purely theoretical or descriptive Not published in peer reviewed journal
Population	Working population subjects only	Non-work samples and trainees
Intervention	An intervention that aims to achieve change in subjects' self-compassion as a stated objective of the study Has sufficient focus on at least one of the three core components of self-compassion	Not specifically aiming to develop self-compassion Does not include an intervention that is sufficiently related to developing self-compassion in terms of content, aims or objectives

Outcomes	Outcome measures that employ a valid and reliable measure of self-compassion	Only provides a process evaluation
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Data extraction

A data extraction tool was developed with reference to previous systematic reviews (e.g. Robertson et al., 2015). The data extracted included information about the study (aim/purpose; design), the population (sample number including gender and mean age; organisational role and occupational group in sample; sample selection method), the intervention (overview of approach; intervention detail including timescale, session number, session content, materials provided and home practice; facilitator or trainer background), the measures employed (outcome/target variables including measure of self-compassion employed; mechanisms if employed - moderators and mediators; data collection time points; process variables if included), the results and evaluation of the study (change in outcome achieved and statistical validity/effect size for self-compassion measure; changes in common outcome measures relating to psychosocial, mental health and subjective wellbeing variables; changes in mechanisms; process evaluation outcomes; qualitative data outcomes), contextual information about the study (country study took place in; location of the intervention (in house/open course); other contextual information if included), conclusions drawn (strengths of the study; limitations of the study; suggestions for further research; recommendations for practice if included; conclusions; other information not already included). The data was extracted by the author independently and all information was collated in an excel spreadsheet. A second researcher then reviewed the

data for consistency and any discrepancies were resolved through discussion.

Data synthesis

The synthesis aimed to put the findings from the individual studies together “into a new or different arrangement and developing knowledge that is not apparent from reading the individual studies in isolation” (Denyer & Tranfield, 2009, p.685). The data synthesis was discussed by the author at each stage with at least one of two researchers. Pawson (2006) suggests that the explanatory synthesis looks to develop a conclusion as to what might work for differing populations in various situations with an emphasis on the outcomes that have been achieved in terms of altering target variables, to what degree, level of validity and in which direction. By applying this type of synthesis, it is hoped that any causal mechanisms will be picked up from the data.

The aim of this review is to explore the evidence for developing self-compassion in the workplace and to assess which interventions have been studied and their subsequent outcomes. To both ensure the detail is not lost and, as the results of the search only accumulated a small number of studies ($k=12$), the findings are reported in a narrative format in this review. Due to the diversity of the interventions employed and outcomes reported, a meta-analysis was not possible.

Quality assessment

An assessment of all the included papers took place to reduce the risk of bias and ascertain the quality of the evidence. This process was broadly based on Snape et al. (2017) and applied the use of checklists by which each of the papers was independently assessed by the lead author and another researcher. The methodology presented by Snape et al. (2017) suggests one assessment of quantitative papers and another assessment for qualitative or mixed methods papers. Both of these checklists were employed accordingly in the present study. Furthermore, the ethics

considered in the qualitative checklist were implemented across all the papers. The two researchers met to discuss their findings and reach consensus for each of the included studies. A third researcher resolved any discrepancies. As a result of this process, the lead author produced tables to represent the results of the quality assessment which can be seen as Supplementary Tables 1 and 2. The researchers agreed evidence statements with gradings which were developed in line with suggestions by Snape et al. (2017), a summary of which can be seen in Table 6.

RESULTS

Overview of results

This review will outline the search and screening process results and provide the detail of the study and intervention characteristics. This will be followed by the quantitative outcomes in relation to self-compassion before outlining the additional measures the included studies considered and the resultant findings of the thematic outcomes. Qualitative and post-programme evaluation data will be reported before the conclusions as to the effectiveness of the interventions, detailed in the included studies, are drawn.

Search and screening results

The search of the databases retrieved 591 records. Following broad and narrow screening (see Figure 1), twelve papers were considered suitable for inclusion in this review; Bazarko, Cate, Azocar and Kreitzer (2013); Beaumont, Durkin, McAndrew and Martin (2016); Beaumont, Irons, Rayner and Dagnell (2016); Duarte and Pinto-Gouveia (2016); Duarte and Pinto-Gouveia (2017); Marx, Strauss, Williamson, Karunavira and Taravajra (2014); Mulla, Govindaraj, Polisetti, George and More (2017); Pidgeon, Ford and Klaassen (2014); Raab, Sogge, Parker and Flament (2015); Scarlet, Altmeyer, Knier and Harpin (2017); Shapiro, Astin, Bishop and Cordova (2005); Slatyer, Craigie, Heritage, Davis and Rees (2017).

Table 2 provides a summary of the study design, sample and overview of the intervention for each of the 12 included studies in this review. A narrative summary follows.

Table 2. Study characteristics

Author/Date	Design			Sample	Intervention
	RCT	CT	T		
Bazarko et al. (2013)			✓	Thirty-six nurses recruited to an intervention group. (Female %=100; Mean age=52.5)	Telephone format group programme based on MBSR: mindfulness meditation, group discussion and stretching and yoga.
Beaumont & Durkin et al. (2016)	✓			Seventeen fire service personnel randomly allocated to an intervention (n=9; male=6, female=3; Mean age=43.2) or treatment as usual control (n=8; male=6, female=2; Mean age=41.3) groups	Cognitive behavioural therapy combined with compassion focused therapy individual programme based on CFT: introduction to model, responses to suffering, brain evolution, 3 circle model, thought records and compassionate letter writing.
Beaumont & Irons et al. (2016)			✓	Twenty-eight healthcare educators and providers volunteered to an intervention group No demographic information reported	Group workshop based on CFT: core theoretical elements, brain evolution, 3 circle model, nature of shame, self-criticism and compassion with experiential exercises.
Duarte & Pinto-Gouveia (2016)		✓		Forty-eight oncology nurses volunteered to an intervention (n=29; female=26; mean age= 38.9) or waitlist control (n=19; female=16; mean age=42.11) groups	Group mindfulness programme based on MBSR: mindfulness breath, body, emotions and thoughts, loving kindness mediation, interpersonal relationships, mindful communication and closing reflection. Compassion and self-compassion in session five.

Author/Date	Design			Sample	Intervention
	RCT	CT	T		
Duarte & Pinto-Gouveia (2017)		✓		As above (study uses data from Duarte and Pinto-Gouveia, 2016)	As above (study uses data from Duarte and Pinto-Gouveia, 2016)
Marx et al. (2014)			✓	Twenty-seven healthcare professionals from a mental health trust volunteered for an intervention group (female%=81; mean age=42)	Group programme based on MBCT: rumination, negative automatic thoughts, relating to thoughts as thoughts not facts, 3- minute breathing space, stress physiology and mindful communication. Induction day pre-programme.
Mulla et al. (2017)			✓	Twenty-two oil company executives volunteered for intervention group (male=21, female=1; median age=51)	Group mindfulness programme based on MBSR: formal and informal mindfulness practice, using mindfulness to cope with stress.
Pidgeon et al. (2014)	✓			Thirty-five human service professionals randomised to an intervention (n=21) and nil-intervention control (n=14) groups. (Overall female%=91; mean age=40.70)	Group based mindfulness retreat programme based on MMTP: silent periods, mindfulness and metta skills, cognitive therapy strategies to increase mindfulness and self-compassion. Booster sessions at 1- and 4-months post-programme.
Raab et al. (2015)			✓	Twenty-two mental healthcare professionals volunteered to an intervention group (Female%=100; age range 24-69)	Group mindfulness programme based on MBSR: variety of meditation techniques (body scan, sitting and walking meditation, hatha yoga), loving kindness meditation. Additional day-of-silence during programme.

Author/Date	Design			Sample	Intervention
	RCT	CT	T		
Scarlet et al. (2017)			✓	Sixty-two healthcare workers volunteered to an intervention group (Female%=81; mean age= 51.23)	Group programme based on CCT: informal and formal mindfulness practice, loving kindness, compassion for loved one and self-compassion, common humanity, compassion for all beings and active compassion practice.
Shapiro et al. (2005)	✓			Twenty-eight healthcare professionals randomly allocated to an intervention (n=10) and waitlist control (n=18) groups. No demographic information reported.	Group mindfulness programme based on MBSR: sitting meditation, body scan, hatha yoga, 3-minute breathing space, loving kindness meditation to encourage self-compassion and compassion for others.
Slatyer et al. (2017)		✓		Seventy-six registered nurses volunteered to intervention (n=65) and waitlist control (n=26) groups. No demographic information reported for final sample.	Group programme based on MSCR: compassion fatigue prevention and resiliency, mindfulness based cognitive therapy, formal mindfulness practice and informal practices.

Study characteristics

i. Country of origin

The twelve studies originated from six countries. Three were from the United States (Bazarko et al., 2013; Scarlet et al., 2017; Shapiro et al., 2005), three were from the United Kingdom (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Marx et al., 2014), two were from Portugal (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017), two were from Australia (Pidgeon et al., 2014; Slatyer et al., 2017), one was from Canada (Raab et al., 2015) and one was from India (Mulla et al., 2017).

ii. Study design

In terms of the design of the studies, three studies conducted randomised controlled trials (Beaumont & Durkin et al., 2016; Pidgeon et al., 2014; Shapiro et al., 2005), three studies conducted (non-randomised) controlled trials (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Slatyer et al., 2017) and six studies reported trials with no control group (Bazarko et al., 2013; Beaumont & Irons et al., 2016; Marx et al., 2014; Mulla et al., 2017; Raab et al., 2015; Scarlet et al., 2017).

iii. Participant characteristics

a. Demographics

Across the twelve studies, there were a total of 401 participants. The mean age of the participants ranged from 38 to 52, based on the six studies (Bazarko et al., 2013; Beaumont & Durkin et al., 2016; Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Pidgeon et al., 2014; Scarlet et al., 2017) that reported this information. For the eight studies that provided information about gender split of the participants included in their final sample, there appeared to be a bias to either predominantly female (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Pidgeon et al., 2014; Raab et al., 2015; Scarlet et al., 2017) or

predominantly male (Beaumont & Durkin et al., 2016; Mulla et al., 2017) participants.

b. Occupations and organisational settings

The participants were comprised of: mixed health care educators and providers from a university setting (Beaumont & Irons et al., 2016), an NHS Mental Health Trust (Marx et al., 2014), either a hospital or private healthcare practice (Scarlet et al., 2017), and a healthcare system (Shapiro et al., 2005). Nurses from a large healthcare company (Bazarko et al., 2013), two major hospitals (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017) and a public teaching tertiary hospital (Slatyer et al., 2017). Human service professionals from a not-for-profit community organisation (Pidgeon et al., 2014), mental healthcare professionals from a mental healthcare organisation (Raab et al., 2015), fire service personnel from a fire service (Beaumont & Durkin et al., 2016) and executives from a public sector oil company (Mulla et al., 2017). It can be surmised that nine of the twelve included studies drew their sample from a healthcare sector-based organisation.

iv. Data collection

Regarding data collection, four of the twelve studies (Beaumont & Durkin et al., 2016; Mulla et al., 2017; Raab et al., 2015; Shapiro et al., 2005) collected data at two time points (pre- and post-intervention). Six studies collected data at three time points: Pre- and post-intervention and at 1-month follow-up (Beaumont & Irons et al., 2016), pre- and post-intervention and at 3-month follow-up (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Marx et al., 2014), pre- and post-intervention and at 4-month follow-up (Bazarko et al., 2013) and pre- and post-intervention and at 6-month follow-up (Slatyer et al., 2017). Two studies collected data at four time points: Pre- and post-intervention, 1-month follow-up and 4-month follow-up (Pidgeon et al., 2014) and Pre-intervention, during-intervention, post-intervention and at 1-month

follow-up (Scarlet et al., 2017). See Table 3 for Intervention characteristics

v. Data reporting

All of the studies report data in terms of quantifiable outcomes measures, including the Self-Compassion Scale. One study (Marx et al., 2014) conducted qualitative analysis of semi-structured interviews and a questionnaire with a selection of participants post-intervention.

Additionally, four studies (Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Pidgeon et al., 2014; Shapiro et al., 2005) included a brief evaluation to assess acceptability and feasibility following the intervention with Pidgeon et al. (2014) requesting frequency of formal and informal practice as well as use of an additional tool. One study (Bazarko et al., 2013) asked participants to maintain a log throughout the intervention detailing the amount and type of participation and at follow up, the maintenance of their practice was also questioned.

vi. Intervention characteristics

a. Intervention length

The length of the interventions detailed in the studies ranged from two and a half days (Pidgeon et al., 2014) to sixteen weeks (Mulla et al., 2017). Other programmes were delivered over three days (Beaumont & Irons et al., 2016), four weeks (Slatyer et al., 2017), six weeks (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017), eight-weeks (Bazarko et al., 2013; Marx et al., 2014; Raab et al., 2015; Scarlet et al., 2017; Shapiro et al., 2005) and twelve weeks (Beaumont & Durkin et al., 2016). See Table 3 for Intervention characteristics.

b. Intervention delivery

The majority of the studies employed the same mode of delivery, this being group based, face to face sessions (Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Marx et al., 2014; Mulla et al., 2017; Pidgeon et al., 2014; Raab et al., 2015;

Scarlet et al., 2017; Shapiro et al., 2005; Slatyer et al., 2017). One study delivered the group sessions by telephone as well as face to face (Bazarko et al., 2013). One study delivered the face to face sessions to participants individually (Beaumont & Durkin et al., 2016). Four of the twelve studies provided opportunities for additional training in the form of a group-based induction day (Bazarko et al., 2013; Marx et al., 2014), booster sessions (Bazarko et al., 2013; Pidgeon et al., 2014) and a “day-of-silence” (Raab et al., 2015). See Table 3 for Intervention characteristics.

c. Intervention content

In terms of the overall approach provided by the intervention content, six studies (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Mulla et al., 2017; Raab et al., 2015; Shapiro et al., 2005) were based on the Mindfulness Based Stress Reduction (MBSR) programme developed by Kabat-Zinn (1982) to teach patients with chronic medical conditions how to lead fuller and healthier lives. MBSR is an evidence-based intervention that focuses on teaching mindfulness meditation, breathwork, basic yoga and other relaxation methods. Mindfulness is cultivated through the practice of meditation (Kabat-Zinn, 2003). In addition, four of these interventions (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Raab et al., 2015; Shapiro et al., 2005) also included instruction and practice of a ‘Loving Kindness’ meditation to increase feelings of warmth and caring towards the self and others. Raab et al. (2015) additionally included a ‘day-of-silence’ towards the conclusion of the intervention.

Two studies (Marx et al., 2014; Slatyer et al., 2017) drew on the principles of Mindfulness Based Cognitive Therapy (MBCT) proposed by Segal et al. (2002). MBCT, unlike MBSR, focuses on rumination, negative automatic thoughts, relating to thoughts as thoughts rather than facts and use of 3-minute breathing space. Marx et al. (2014) followed the protocol for MBCT with some modifications from MBSR which included some education on stress physiology and emphasis on mindful and

difficult communications. Slatyer et al. (2017) introduced formal mindfulness practices based on MBCT including body and breath, body scan, mindful movement & stretching, sitting with the breath, body & thoughts. The brief psychosocial intervention employed integrates compassion fatigue prevention and resiliency education from Gentry and Baranowsky (2013) with some key ideas and practices of MBCT.

Two studies (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016) employed Compassion Focused Therapy (CFT) which was developed by Gilbert (2000; 2010) for individuals who experience self-criticism and shame. Key principles of CFT are to motivate individuals to care for their wellbeing, to become sensitive to personal needs and distress and to extend warmth and understanding toward themselves (Gilbert, 2014). CFT involves developing key compassionate attributes and the skills of compassion to themselves and others (Gilbert, 2009). Within the CFT focused approach, participants are taught to develop soothing breathing techniques and respond with compassion to difficult feelings such as anger and sadness. Compassionate letter writing also formed a part of the CFT protocol employed.

One study (Pidgeon et al., 2014) focused on training in mindfulness and metta skills including cognitive therapy strategies to increase mindfulness and self-compassion. The mindfulness with metta training programme (MMTP) was based on metta, or loving kindness meditation, described as a mind-training practice utilised to increase feelings of warmth and caring for the self and others. The programme also consisted of periods of silence.

One study (Scarlet et al., 2017) employed the Compassion Cultivation Training (CCT) protocol developed by Stanford University (Jinpa, 2010). The intervention content included mindfulness, loving kindness and compassion for a loved one, loving kindness and compassion for the self, compassion towards others through embracing common humanity,

compassion towards all beings and active compassion practice. The Loving Kindness meditation was also taught to participants.

d. Additional elements

1. Home practice

The majority of the studies (excluding Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016) advocated participants' home practice of the tools and techniques taught during the interventions. While a number of the studies advocated daily home practice (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Marx et al., 2014; Mulla et al., 2017; Scarlet et al., 2017; Shapiro et al., 2005) the duration of the home practice was not reported. However, Bazarko et al. (2013) suggested 25/30 minutes, Duarte and Pinto-Gouveia (2016) and Duarte and Pinto-Gouveia (2017) suggested 15 minutes and, although the regularity of the home practice was not reported, Slatyer et al. (2017) suggested 10-25 minutes of home practice.

2. Tools provided

To support the participants' practice away from the taught elements of the interventions, a number of the studies provided a CD or audio recordings of guided meditation practices and a manual or workbook to accompany the intervention (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Slatyer et al., 2017). One study (Pidgeon et al., 2014) provided a CD alone.

3. Informal practice

Informal practice was also advocated (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Mulla et al., 2017; Pidgeon et al., 2014; Scarlet et al., 2017; Slatyer et al., 2017) including mindful eating (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Mulla et al., 2017; Pidgeon et al., 2014; Slatyer et al., 2017), washing dishes and showering (Mulla et al., 2017), walking (Pidgeon et al., 2014) and sending loving kindness to passers-by (Scarlet et al., 2017).

Table 3. Intervention characteristics

Author/ date	Inter- vention length	Facilitator	Approach			Additional elements		Data collection			Contact time		Outcome (Overall SCS)			
			MBSR	CFT	Other	Home practice	Other tools	Pre	Post	Flw Up	Face to face	Phone	Measure		Effect size (p) Post	Effect size (p) Flw up
													SCS	SCS- SF		
Bazarko et al. (2013) A	8 weeks	MBSR Instructor	√			√	√	√	√	√ 4M	√ 2 days	√ 9 hours	√		T1-T2: +ve, p<.001 B	T2-T3: +ve, p<.01 B
Beaumont & Durkin et al. (2016)	12 weeks	Cognitive Behavioural Psycho-therapist		√				√	√		√ 13 hours			√	d=1.42, p<.05	
Beaumont & Irons et al. (2016) A	3 days	Clinical Psychologist		√				√	√	√ NR	√ 3 days			√	d=1.60, p<.001	
Duarte & Pinto-Gouveia (2016)	6 weeks	Clinical Psychologist	√			√	√	√	√	√ NA	√ 12 hours		√		d=.70, p<.02	
Marx et al. (2014) A	8 weeks	MBCT Teacher			√ MBCT	√		√	√	√ 3M	√ NR		√		T1-T2: d=.67, p<.001	T1-T3: d=.81, p<.001
Mulla et al. (2017) A	16 weeks	Clinical Psychologist	√			√	√	√	√		√ 3 days		√		d=-.71, p<.01	

Author/ date	Inter- vention length	Facilitator	Approach			Follow up		Data collection			Contact time		Outcome (Overall SCS)			
			MBSR	CFT	Other	Home practice	Other tools	Pre	Post	Flw Up	Face to face	Phone	Measure		Effect size (p) Post	Effect size (p) Flw up
Pidgeon et al. (2014)	2.5 days & Booster Sessions at 1 & 4 months	NR			✓ MMTP	✓	✓	✓	✓	✓ 1M & 4M	✓ 2.5 days + 8 hours		✓		T1-T2: -ve, p>.396 NS	T1-T3/4: d=1.25, p<.002
Raab et al. (2015) A	8 weeks	MBSR Instructor	✓			✓		✓	✓		✓ 20 hours + silent day		✓		+ve, p<.003 B	
Scarlet et al. (2017) A	8 weeks	NR			✓ CCT	✓		✓	✓	✓ 1M	✓ 16 hours			✓	T1-T2: +ve, p<.01 B	T2-T3: +ve, p<.01 B
Shapiro et al. (2005)	8 weeks	Clinical Psychologist	✓			✓		✓	✓		✓ 16 hours		✓		+ve, p<.004 B	
Slatyer et al. (2017)	4 weeks	Clinical Psychologist			✓ MSCR	✓	✓	✓	✓	✓ 6M Int Group only	✓ 11.5 hours			✓	T1-T2: d=.27 p<.001	T1-T3: d=.35 p<.004

Note: A – Intervention effect size based on repeated (pre, post), within-group, measures only; B – Unable to calculate effect size. NA- Not Analysed; NR- Not Reported; +ve – higher intervention mean; -ve – lower intervention mean; NS – Not significant; SCS – Self-Compassion Scale (Neff, 2003a) d = Cohen's d (1988)(Effect sizes – 0-0.1 no effect; 0.2-0.4 small effect; 0.5-0.7 medium effect; 0.8+ large effect)MBSR – Mindfulness Based Stress Reduction; MBCT – Mindfulness Based Cognitive Therapy; CFT – Compassion Focused Therapy; MMTP – Mindfulness with Metta Training Programme; CCT – Compassion Cultivation Training; MSCR – Mindful Self Care and Resiliency.

Outcomes

The primary aim of this review is to ascertain if there is evidence to support the suggestion that self-compassion focused interventions can lead to benefits relevant to a working population. Firstly, in direct response to the research question posed in this review, self-compassion as a specific overall outcome measure will be considered in detail to assess the evidence to support the approach's development in studies conducted in the workplace. Followed by additional measures the studies selected to assess prior to and following the interventions including mental health, subjective wellbeing and psychosocial outcomes. Thematic outcome measures will be considered in relation to common areas of interest across the included studies in this review including stress, burnout, anxiety and depression, professional quality of life, satisfaction with life, quality of life, resilience and mindfulness. The qualitative analysis and post-intervention evaluations relating to feasibility, acceptability and frequency of practice will be considered in conclusion of the reported outcomes. Finally, the quality assessment of the included studies will be summarised.

i. Self-Compassion related outcomes

Statistically significant results and effect sizes of the intervention in relation to the overall Self-Compassion Scale scores reported in the studies are shown in Table 3 Intervention characteristics.

In the studies that either provided or allowed conversion to effect sizes reported in terms of Cohen's d (Cohen, 1988), significant increases in overall self-compassion were demonstrated post-intervention by fire service personnel ($d=1.42$, $p<.05$, Beaumont & Durkin et al. (2016)) showing a large effect size; health care educators and providers ($d=1.60$, $p<.001$, Beaumont & Irons et al. (2016)) showing a large effect size based on the total composite score for the three positive subscales; oil company executives ($d=-.71$, $p<.01$, Mulla et al. (2017)) showing a medium effect

size; oncology nurses ($d=.70$, $p<.02$, Duarte & Pinto-Gouveia (2016)) showing a medium effect size; healthcare professionals ($d=.67$, $p<.001$, Marx et al. (2014)) showing a medium effect size and from pre-test to three-month follow up ($d=.81$, $p<.001$) showing a large effect size; registered nurses ($d=.27$, $p<.001$, Slatyer et al. (2017)) showing a small effect size and from pre-test to six-month follow up ($d=.35$, $p<.004$) showing a small effect size and there was no significant difference between post-test and follow up scores ($p>.05$) suggesting that self-compassion levels were maintained between these data collection points. Human service professionals showed no significant change from pre to post intervention on the self-compassion measure in Pidgeon et al.'s (2014) study, however from pre to follow up a large effect size was reported ($d=1.25$, $p<.002$). A significant difference was observed for overall self-compassion by healthcare professionals from Shapiro et al. (2005) ($p<.004$).

In the repeated measures within-group studies that reported the pre to post intervention change in terms of t-tests (t), a significant difference was observed for overall self-compassion by nurses from Bazarko et al. (2013) ($t=6.53$, $p<.001$) at post intervention and from post to four-month follow up ($t=2.75$, $p<.01$) suggesting self-compassion continued to increase in the months that followed the intervention, and by mental healthcare professionals from Raab et al. (2015) ($t=3.32$, $p<.003$). In the studies that reported the pre to post intervention change in terms of variance and F statistic (F), a significant difference was observed for overall self-compassion by healthcare workers from Scarlet et al. (2017) ($F=14.44$, $p<.01$) at post intervention and at one-month follow up ($F=26.77$, $p<.01$) suggesting self-compassion levels continued to improve after the intervention had concluded.

In relation to the subscale scores of the Self-Compassion Scale, five of the included studies reported on these (Bazarko et al., 2013; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-

Gouveia, 2017; Raab et al., 2015). Bazarko et al. (2013) reported significant improvements for nurses ($p < .001$) on all six subscale areas of self-compassion from pre to post-intervention, with further significant increases reported on self-kindness ($p < .05$) and common humanity ($p < .01$) from post-intervention to four-month follow up. Beaumont and Irons et al. (2016), noted a reduction in “self-critical judgement” based on a total composite score for the three negative subscales, showing a significant main effect ($d = 1.77$, $p < .001$) from pre to post-intervention for healthcare educators and providers. Duarte and Pinto-Gouveia (2016) reported significant time and condition interaction effects for common humanity ($d = .67$, $p < .03$) and isolation ($d = .67$, $p < .03$), with the intervention group of oncology nurses only showing a significant increase in mindfulness ($d = .67$, $p < .03$) and a significant decrease in over-identification ($d = .63$, $p < .03$) from pre to post-intervention. When Duarte and Pinto-Gouveia (2017) considered the self-compassion subscales separately, they found that self-kindness and self-judgement did not significantly mediate the effects of the intervention on any outcome variable for oncology nurses. Raab et al. (2015) reported significant changes in four of the six subscales, with an increase in common humanity ($p < .03$) and decreases in self-judgement ($p < .004$), isolation ($p < .04$) and over-identification ($p < .02$) reported for mental healthcare professionals from pre to post-intervention.

ii. Self-compassion as a mechanism

One paper (Duarte & Pinto-Gouveia, 2017) reported on the findings of a previous study (Duarte & Pinto-Gouveia, 2016) and focused on self-compassion as a mechanism to mediate the effects of a mindfulness-based intervention in a sample of oncology nurses. The results reported that self-compassion significantly mediated the effects of the intervention on burnout, depression, anxiety and stress symptoms and satisfaction with life but was not a significant mediator for compassion fatigue.

Shapiro et al. (2005) reported that their findings suggested that changes in self-compassion significantly predicted positive changes in perceived stress. Although the sample size was small and therefore such interpretations must be considered with caution, it is suggested that there may be value in examining self-compassion as a mediating mechanism when investigating mindfulness in future research.

Overall, the quality assessment indicated that there is promising evidence to suggest that interventions provided to a working population improve the self-compassion of the participants. All the studies indicate a positive effect though these are all somewhat limited in their design and execution.

iii. Additional measures of mental health, subjective wellbeing and psychosocial outcomes

All but one of the studies relied on self-report measures: Mulla et al. (2017) measured blood pressure and cortisol levels of the subjects pre and post intervention.

Table 4 summarises all the mental health, subjective wellbeing and psychosocial outcomes assessed by the included studies in this review and includes the various measures employed.

Table 4. Summary of mental health, subjective wellbeing and psychosocial self-report measures

Outcome Measure	Bazarko et al. (2013)	Beau-mont & Durkin et al. (2016)	Beau-mont & Irons et al. (2016)	Duarte & Pinto-Gouveia (2016)	Duarte & Pinto-Gouveia (2017)	Marx et al. (2014)	Mulla et al. (2017)	Pidgeon et al. (2014)	Raab et al. (2015)	Scarlet et al. (2017)	Shapiro et al. (2005)	Slatyer et al. (2017)
Self-Compassion	X (SCS)	X (SCS-SF)	X (SCS-SF)	X (SCS)	X (SCS)	X (SCS)	X (SCS)	X (SCS)	X (SCS)	X (SCS-SF)	X (SCS)	X (SCS-SF)
Stress	X (PSS)					X (PSS)	X (SIQ)				X (PSS)	
Burnout	X (CBI)								X (MBI)	X (CBI)	X (MBI)	
Physical and Mental Health	X (SF-12)											
Psychological Distress											X (BSI)	
Anxiety, Depression & Stress		X (HADS)		X (DASS21)	X (DASS21)							X (DASS21)
Professional Quality of Life				X (ProQOL5)	X (ProQOL5)							X (ProQOL5)
Quality of Life									X (QOLI)			X (WHO Five)
Satisfaction with Life				X (SWLS)	X (SWLS)						X (SWLS)	
Job Satisfaction										X (BIAJS)		
Resilience								X (RS-14)				X (CD-RISC10)
Self-Efficacy												X (GSES)
Mindfulness				X (FFMQ)				X (FFMQ)		X (TMS)		

Outcome Measure	Bazarko et al. (2013)	Beau-mont & Durkin et al. (2016)	Beau-mont & Irons et al. (2016)	Duarte & Pinto-Gouveia (2016)	Duarte & Pinto-Gouveia (2017)	Marx et al. (2014)	Mulla et al. (2017)	Pidgeon et al. (2014)	Raab et al. (2015)	Scarlet et al. (2017)	Shapiro et al. (2005)	Slatyer et al. (2017)
Empathy	X (JSPE)											
Serenity	X (BSS)											
Impact of Events		X (IES-R)										
Self-Criticism			X (FSCS)									
Acceptance & Action				X (AAQ-II)								
Ruminative Responses				X (RRS)								
Interpersonal Conflict										X (ICS)		
Fears of Compassion										X (FOCS)		

Note: AAQ-II – Acceptance and Action Questionnaire-II (Bond et al., 2011); BIAJS – Brief Index of Affective Job Satisfaction (Thompson & Phua, 2012); BSI – Brief Symptom Inventory (Derogatis, 1993); BSS – Brief Serenity Scale (Kreitzer et al., 2009); CBI – Copenhagen Burnout Inventory (Kristensen et al., 2005); CD- RISC10 – Connor-Davidson Resilience Scale (Connor & Davidson, 2003); DASS21 – Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995); FFMQ – Five Facets of Mindfulness Questionnaire (Baer et al., 2006); FOCS – Fears of Compassion Scale (Gilbert et al., 2011); FSCS – Functions of Self-Criticizing and Self-Attacking Scale (Gilbert et al., 2004); GSES – General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995); HADS – Hospital Anxiety and Depression Scale (Smith & Zigmond, 1994); ICS – Interpersonal Conflict Scale (Harvey et al., 2006); IES-R – Impact of Events Scale – Revised (Horowitz et al., 1979; Weiss & Marmar, 1996); JSPE – Jefferson Scale of Physician Empathy (Hojat et al., 2001); MBI – Maslach Burnout Inventory (Maslach & Jackson, 1981); ProQOL5 – Professional Quality of Life (Stamm, 2010); PSS – Perceived Stress Scale (Cohen et al., 1983); QOLI – Quality of Life Inventory (Frisch et al., 1992); RRS – Ruminative Responses Scale – Short (Treyner et al., 2003); RS-14 – Resilience Scale (Wagnild & Young, 1993); SCS – Self-Compassion Scale (Neff, 2003a); SCS-SF – Self-Compassion Scale – Short Form (Raes et al., 2011); SF-12v2 – Health Survey (Ware et al., 1996); SIQ – Stress Indicator Questionnaire (The Counselling Team International, n.d.); SWLS – Satisfaction With Life Scale (Diener et al., 1985); TMS – Toronto Mindfulness Scale (Lau et al., 2006); WHO Five – Well-being Index (Bech, 1998)

iv. Thematic outcome measures across the included studies

a. Summary of thematic outcome measures employed

All of the studies reviewed considered additional outcomes alongside that of self-compassion in the areas of mental health, subjective wellbeing and psychosocial measures. In the area of mental health and subjective wellbeing, the most common of the additional outcome measures assessed were those of burnout and stress. In regard to burnout, this outcome was measured by four of the studies; two (Bazarko et al., 2013; Scarlet et al., 2017) employed the CBI (Kristensen et al., 2005), and two (Raab et al., 2015; Shapiro et al., 2005) employed the MBI (Maslach & Jackson, 1981). Three studies (Bazarko et al., 2013; Marx et al., 2014; Shapiro et al., 2005) employed the PSS (Cohen et al., 1983) to measure perceived stress, with Mulla et al. (2017) employing the Stress Inventory Questionnaire (The Counseling Team International, n.d.). Depression, anxiety and stress was measured using the DASS21 (Lovibond & Lovibond, 1995) by two studies (Duarte & Pinto-Gouveia, 2016; Slatyer et al., 2017) and anxiety and depression was measured using the Hospital Anxiety and Depression Scale (Smith & Zigmond, 1994) in one study (Beaumont & Durkin et al., 2016).

In the area of psychosocial outcomes, professional quality of life was measured by two studies (Duarte & Pinto-Gouveia, 2016; Slatyer et al., 2017) employing the ProQOL5 (Stamm, 2010). Quality of life was assessed by Raab et al. (2015) employing the QOLI (Frisch et al., 1992) and Slatyer et al. (2017) using the WHO Five (Bech, 1998). Satisfaction with life was measured in two studies (Duarte & Pinto-Gouveia, 2016; Shapiro et al., 2005) using the SWLS (Diener et al., 1985). Resilience was measured as an outcome in two studies; one (Pidgeon et al., 2014) employed the use of the RS-14 (Wagnild & Young, 1993), and one (Slatyer et al., 2017) employed the use of CD-RISC10 (Connor & Davidson, 2003). The outcome of mindfulness was measured in three studies; two (Duarte & Pinto-Gouveia, 2016; Pidgeon et al., 2014)

employed the use of the FFMQ (Baer et al., 2006) and one (Scarlet et al., 2017) employed the use of the TMS (Lau et al., 2006).

b. Reported outcomes of mental health, subjective wellbeing and psychosocial self-report measures

A summary of the effect sizes reported or calculated by the author in the additional areas of mental health, subjective wellbeing and psychosocial outcomes are provided in Table 5. A narrative summary of the significant findings follows.

Table 5. Summary of effect sizes for mental health, subjective wellbeing and psychosocial self-report measures

Author & Date	Stress	Burnout	Anxiety/ Depression/ Stress	Professional Quality of Life	Quality of Life	Satisfaction with Life	Resilience	Mindfulness
Bazarko et al. (2013) A	(PSS) B T1-T2 +ve, $p < .001$ T2-T3 NS	(CBI) B T1-T2 Personal: +ve, $p < .001$ Work: +ve, $p < .001$ Client: +ve, $p < .05$ T2-T3 Personal: NS Work: +ve, $p < .05$ Client: NS						
Beaumont & Durkin et al. (2016)			(HADS) T1-T2 NS					
Duarte & Pinto-Gouveia (2016)	(DASS21) $d = .81$, $p < .008$	(ProQOL5) $d = .97$, $p < .002$	(DASS21) Depression and anxiety NS	(ProQOL5) Compassion Satisfaction: NS Secondary traumatic stress: $d = 1.28$, $p < .001$		(SWLS) $d = .70$, $p < .026$		(SCS) $d = .67$, $p < .026$
Marx et al. (2014) A	(PSS) T1-T2 $d = 0.76$, $p < .001$ T1-T3 $d = 0.98$, $p < .001$							

Author & Date	Stress	Burnout	Anxiety/ Depression/ Stress	Professional Quality of Life	Quality of Life	Satisfaction with Life	Resilience	Mindfulness
Mulla et al. (2017) A	(SIQ) Physical: d=0.62, p<0.05 Sleep: d=0.36, p<0.05 Behaviour: d=0.35, p<0.05 Emotional: d=0.38, p<0.05 Personal habits: d=0.39, p<0.05							
Pidgeon et al. (2014)							(RS-14) B T1-T2 NS T1-T4 +ve, p<.008	(FFMQ) T1-T2 d=1.74, p<.001 T1-T3+T4 +ve, p<.001
Raab et al. (2015) A		(MBI) Personal Accomplishment : NS Emotional exhaustion: NS Depersonalisa- tion: NS			(QOLI) NS			
Scarlet et al. (2017) A		(CBI) B NS						(TMS) B T1-T2 +ve, p<.01 T2-T3 +ve, p<.01
Shapiro et al. (2005)	(PSS) +ive, p<.04	(MBI) NS				(SWLS) NS		

Author & Date	Stress	Burnout	Anxiety/ Depression/ Stress	Professional Quality of Life	Quality of Life	Satisfaction with Life	Resilience	Mindfulness
Slatyer et al. (2017)		(ProQOL5) T1-T2 d=0.38, p<.001 T1-T3 d=0.39, p<.009	(DASS21) T1-T2 Depression: d=0.32, p<.011 Anxiety and stress both NS T1-T3 and T2- T3 NS	(ProQOL5) T1-T2 Compassion Satisfaction: d=0.17, p<.026 Secondary traumatic stress: T1-T3 d=0.52, p<.001	(WHO Five) T1-T2 d=0.54, p<.001 T1-T3 d=0.39, p<.033		(CD-RISC10) F=1.81 NS	

Note: A – Intervention effect size based on repeated (pre, post), within-group, measures only; B – Unable to calculate effect size; +ve – higher intervention mean; -ve – lower intervention mean; NS – Not significant ; d = Cohen’s d (Effect sizes – 0-0.1 no effect; 0.2-0.4 small effect; 0.5-0.7 medium effect; 0.8+ large effect)

1. Mental Health and Subjective Wellbeing Outcomes

Stress

In terms of the outcome relating to stress, as measured by the Perceived Stress Scale (PSS; Cohen et al., 1983), three studies (Bazarko et al., 2013; Marx et al., 2014; Shapiro et al., 2005) reported significant results. From pre to post-intervention, Marx et al. reported a medium effect size ($d=.76$, $p<.001$) on the perceived stress of healthcare professionals and a large effect size ($d=.98$, $p<.001$) from pre-intervention to three-month follow up. Bazarko et al. reported a significant improvement in perceived stress ($p<.001$) for nurses and Shapiro et al. reported a significant reduction in stress ($p<.04$) for healthcare professionals post-intervention compared to the control group.

Mulla et al. (2017) measured stress using the Stress Indicator Questionnaire (SIQ; The Counselling Team International, n.d.) which employs five subscales, each assessing an indicator of stress. The reported outcomes on the various indicators for oil company executives post-intervention showed a medium effect size ($d=.62$, $p<.05$) for physical indicators of stress, and small effect sizes for sleep related indicators ($d=.36$, $p<.05$), behavioural indicators ($d=.35$, $p<.05$), emotional indicators ($d=.38$, $p<.05$) and personal habits ($d=.39$, $p<.05$).

Stress is assessed as a subscale of the Depression, Anxiety and Stress Scale (DASS21; Lovibond & Lovibond, 1995) with a large effect size reported post-intervention for stress ($d=.81$, $p<.008$) only for the oncology nurses in the intervention group by Duarte and Pinto-Gouveia (2016).

Burnout

Burnout is assessed as a subscale of the Professional Quality of Life Scale (ProQOL5; Stamm, 2010) with a large effect size ($d=.97$, $p<.002$) reported post-intervention for oncology nurses in the intervention group by Duarte and Pinto-Gouveia (2016), a small effect size ($d=.38$, $p<.001$)

reported by Slatyer et al. (2017) for registered nurses and a small effect size ($d=.39$, $p<.009$) was also seen in this study from pre-intervention to six-month follow up in relation to this outcome measure compared to the control group.

Bazarko et al. (2013) reported significant improvement for nurses from pre to post-intervention in the three subscales of the Copenhagen Burnout Inventory (CBI; Kristensen et al., 2005), including personal ($p<.001$), work ($p<.001$) and client ($p<.05$). The nurses continued to improve from post-intervention to four-month follow up ($p<.05$) showing a significant decrease in work related burnout after the intervention had concluded.

Depression

Depression, as measured by the Depression, Anxiety and Stress Scale (DASS21; Lovibond & Lovibond, 1995) was reported as significantly reduced for nurses by Slatyer et al. (2017) and showed a small effect size ($d=.32$, $p<.011$) post-programme, compared to the control group.

2. Psychosocial Outcomes

Professional quality of life

The Professional Quality of Life Scale (ProQOL5; Stamm, 2010) includes the subscales of compassion satisfaction and secondary traumatic stress. Duarte and Pinto-Gouveia (2016) reported a significant improvement in secondary traumatic stress (compassion fatigue) ($d=1.28$, $p<.001$) with a large effect size, compared to the control group. Slatyer et al. (2017) reported a significant improvement in compassion satisfaction for nurses between pre and post-intervention although the effect was marginal ($d=.17$, $p<.026$). From pre-intervention to six-month follow up, the nurses in the treatment group showed significantly lower secondary traumatic stress with a medium effect size ($d=.52$, $p<.001$) when compared to the control group.

Quality of life

The outcome measure of quality of life was assessed using the Well-being Index (WHO Five; Bech, 1998) by Slatyer et al. (2017) and reported a significant difference between pre and post-intervention for the nurses in the treatment group with a medium effect size ($d=.54$, $p<.001$). The nurses also showed a significant improvement in subjective quality of life from pre-intervention to six-month follow up with a small effect size ($d=.39$, $p<.033$) compared to the control group.

Satisfaction with life

Duarte and Pinto-Gouveia (2016) measured satisfaction with life using the Satisfaction With Life Scale (SWLS; Diener et al., 1985) and reported a significant increase in this outcome for oncology nurses with a medium effect size ($d=.70$; $p<.026$) compared to the control group.

Resilience

Resilience was considered as an outcome measure for human service professionals by Pidgeon et al. (2014) using the Resilience Scale (RS-14; Wagnild & Young, 1993). Although there was no significant difference immediately post-intervention between the treatment and control groups, there was a significant improvement in reported resilience from pre-intervention to four-month follow up ($p<.008$).

Mindfulness

Pidgeon et al. (2014) and Duarte and Pinto-Gouveia (2016) considered mindfulness as a standalone outcome measure employing the Five Facets of Mindfulness Questionnaire (FFMQ; Baer et al., 2006) along with Scarlet et al. (2017) whose study used the Toronto Mindfulness Scale (TMS; Lau et al., 2006). Although Pidgeon et al. found no significant differences between the treatment and control groups post-intervention, the treatment group did report significant increases in mindfulness with a large effect size ($d=1.74$, $p<.001$). The human service professionals in the intervention condition also reported significant improvements at both

one-month and four-month follow up ($p < .001$) compared to pre-intervention levels of mindfulness. Oncology nurses in Duarte and Pinto-Gouveia's intervention group reported significant increases in mindfulness with medium effect sizes ($d = .67$, $p < .026$) compared to the comparison group. A significant improvement in mindfulness over time was reported for healthcare workers in Scarlet et al. (2017) from pre to post-intervention ($p < .01$) and with a significant linear trend indicated from post-intervention to one-month follow up ($p < .01$).

Summary

Overall, the quality assessment indicated that there is promising evidence to suggest that interventions provided to a working population improve the mental health, subjective wellbeing and psychosocial wellbeing of participants. The majority of the studies indicate a positive effect though these are all somewhat limited in their design and execution.

v. Qualitative data

One study (Marx et al., 2014) sought and thematically analysed qualitative data that was sourced from 38% ($n = 18$) of the intervention participants who self-selected to take part in a semi-structured interview between 1-3 months post-intervention. Furthermore, 79% ($n = 37$) of participants offered a place on the programme contributed to the qualitative analysis through providing written responses to the open-ended questions. Three key themes emerged from this analysis, with the percentages of participants contributing to themes/subthemes: increase in mindfulness (33%) which was a repeating theme amongst the self-reports; improved wellbeing which refers to awareness and management of stress (56%), kinder to self (17%), less reactivity (11%) and mood improvement (11%); changes to work life which included improved relationships with colleagues (56%), improved work practices with patients (39%), managing work pressures (39%) and no difference noticed in work life (11%).

a. Post-intervention evaluations

Six of the included studies (Bazarko et al., 2013; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Pidgeon et al., 2014; Shapiro et al., 2005) also administered post-intervention evaluations to the subjects following the intervention.

Duarte and Pinto-Gouveia (2016) reported statistical analyses taken from the results of the evaluation to consider differences between frequency of practice and overall self-compassion, where significant interactions were revealed ($d=1.09$, $p<.012$), burnout ($d=.91$, $p<.038$), depression ($d=1.15$, $p<.007$) all indicating large effect sizes. The change in these variables from pre-test to post-test was significant for participants who practiced more, but not for participants who practiced less.

Bazarko et al. (2013) reported that for the participants who indicated, in the post-intervention evaluation, that they had maintained their MBSR practice since completing the programme were significantly higher in overall self-compassion ($p<.001$), perceived stress ($p<.001$), personal burnout ($p<.05$) and work burnout ($p<.05$) compared to the participants who did not maintain their practice.

Shapiro et al. (2005) point out that the findings from their open-ended questions revealed further benefits to the intervention that are not easily captured by the use of traditional psychological inventories. The intervention is reported to have had a significant positive impact on the lives of the participants with the mean rating of the impact of the MBSR programme as 9.2 on a 1-10 scale. Albeit based on subjective report, this indicates the intervention did substantially impact participants' lives.

Marx et al. (2014) reported their post-intervention evaluation findings as mean ratings to Likert scale questions which found the 'importance of the course' as being 8.61 (S.D = 1.48) and 'helpfulness of the course in managing stress at work' as being 7.67 (S.D = 2.14) on a 1-10 scale.

Beaumont and Irons et al. (2016) reported participants found the CFT model easy to understand, they valued the experience of coming together as a staff group and examining interventions that could potentially help them to develop compassion for themselves and others.

Pidgeon et al. (2014) administered a questionnaire following the intervention at the second booster session and four-month follow up that assessed participants' frequency of formal and informal meditation practice since the retreat. In regard to formal practice, one participant reported daily practice, 36% reported once or twice a week, 21% reported practicing once every two weeks and 36% reported once a month or not at all. Participants were also questioned as to their preference of guided meditations on the CD provided with the intervention and the majority selected 'Connecting with the breath' and 'Metta Meditation'. Interestingly, the frequency of informal practice was higher than formal practice, with 50% of participants reporting that they incorporated informal mindfulness practices into their daily lives. Approximately 22% of participants indicated using informal practices once or twice a week, while 28% reported using such practices once every two weeks to once a month. The most commonly cited informal practices included mindful walking, showering/bathing and housework.

vi. Summary of Outcomes

The purpose of this systematic literature review was to synthesise research on interventions in the workplace that specifically look to develop the self-compassion of participants and evaluate the effects of the interventions on the participants' reported levels of self-compassion. In general, the studies supported the positive impact of the interventions employed, in all but one (Pidgeon et al., 2014) of the 12 reviewed studies, there was a statistically significant change in the self-compassion scores from pre to post intervention.

When accounting for significant change in subjects' overall Self-Compassion Scale scores from pre-intervention to follow up, in all of the reviewed studies that undertook, analysed and reported data from this later time point (Bazarko et al., 2014; Marx et al., 2014; Pidgeon et al., 2014; Scarlet et al., 2017; Slatyer et al., 2017), the direction of the results is in favour of a significant beneficial effect of the intervention employed.

a. Are interventions to develop self-compassion effective?

All of the 12 studies reviewed showed that the participants' reported levels of self-compassion improved across time. All studies, excluding one (Pidegon et al., 2014) showed significant improvement in the overall Self-Compassion Scale scores following the intervention. The finding that there was no significant difference between the groups, retreat vs. control, post intervention on levels of self-compassion is explained by Pidgeon et al. (2014) as possibly related to the timing of the post-measurement, "the retreat group was measured immediately after the intervention and therefore had not had time to practice and apply the skills learned over the course of the retreat" (p. 8). This is supported by reported levels of self-compassion at one-month follow up and four-month follow up being significantly higher than those reported at pre-intervention. Leading Pidgeon et al. (2014) to suggest that this may indicate the possibility of a sleeper effect whereby increasing self-compassion takes a longer period of time to develop with increased awareness of internal and external events and fewer harsh self-judgements.

This particular finding from Pidgeon et al.'s (2014) study could be a reflection of the mode of delivery employed for the intervention. No other study used a retreat format as the intervention in the final studies selected for this systematic review, therefore, it is not possible to indicate if this is the case for this particular mode of delivery in a comparative manner.

In terms of the effectiveness of the interventions employed in the final studies included in the current review, all could be argued as being effective in developing self-compassion based on the reported findings. From pre to post intervention, the findings show a large effect size on reported levels of overall self-compassion in two studies (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016), three studies showed a medium effect size (Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Mulla et al., 2017), and one study showed a small effect size (Slatyer et al., 2017). The findings reported also show significant differences within the intervention group from pre to post in four studies (Bazarko et al., 2013; Raab et al., 2015; Scarlet et al., 2017; Shapiro et al., 2005).

In the studies that included follow up data, two studies (Marx et al., 2014; Pidgeon et al., 2014) reported a large effect size from pre-intervention to follow up, two studies (Bazarko et al., 2013; Scarlet et al., 2017) reported significant differences from post-intervention to follow up, and one study (Slatyer et al., 2017) reported a small effect size from pre-intervention to follow up.

In terms of the post-intervention evaluations that were administered to participants in six of the included studies (Bazarko et al., 2013; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Pidgeon et al., 2014; Shapiro et al., 2005) the findings were overwhelmingly positive. The nurses who continued their practice following the intervention were significantly higher in their overall self-compassion in Bazarko et al.'s (2013) study. The healthcare professionals in Shapiro et al.'s (2005) study considered the MBSR intervention substantially impacted on their lives and rated the impact as 9.2 on a 1-10 scale. The majority of nurses in Duarte and Pinto-Gouveia's (2016) study felt they had learned something important for their lives from the MBSR intervention and rated its importance as a 7 on a 0-10 scale. Half of the human service professionals in Pidgeon et al.'s (2014) study reported that they incorporated informal mindfulness practices such as

mindful walking, showering/bathing and housework into their daily lives following the retreat intervention. The healthcare professionals in Beaumont and Irons et al.'s (2016) study reported that they valued the experience their participation in the CFT workshop intervention brought about in relation to developing compassion for themselves and others.

The qualitative data that the healthcare professionals in Marx et al.'s (2014) study reported showed the importance of the MBCT intervention and its helpfulness in managing stress at work. Furthermore, the three themes that emerged that acknowledged how the intervention had increased their mindfulness, improved their wellbeing and supported changes in their working lives. Of particular interest in terms of the core components of self-compassion, a sub-theme of increased kindness to self was reported, albeit by 17% of the participants. Additionally, however, 56% of the healthcare professionals reported improved relationships with colleagues which relates to the premise of common humanity.

vii. Quality assessment

The full results of the quality assessment are provided as Supplementary Tables: Supplementary Table 1 provides the quality assessment of the quantitative methodologies and Supplementary Table 2 provides the quality assessment of qualitative methodologies. In summary, the quantitative studies were limited in their use of randomised control groups, employing measures other than self-report, treatment of missing data and ethical considerations. The single qualitative study assessed was limited in aspects relating to data collection, recruitment strategy, rigour in relation to data analysis, response to events during the study and providing adequate discussion of issues relating to ethical considerations. Table 6 provides a summary of the evidence statement and the quality rating.

Table 6. Evidence statements and quality ratings

Evidence statement	Quality rating	Reasoning
Interventions delivered to a working population improve...		
...self-compassion of participants	Promising evidence	There are multiple studies all limited in their design and execution
...health and wellbeing of participants	Promising evidence	There are multiple studies all limited in their design and execution

DISCUSSION

Overview of discussion

The primary objective of this review was to ascertain if there is evidence to support the suggestion that self-compassion focused interventions can lead to benefits relevant to a working population. As this is the first systematic review to consider the evidence in relation to developing self-compassion in the workplace, a key focus has been to identify the interventions that have been used to develop self-compassion and the outcomes that have been found as a result. The findings suggest that a variety of training programmes for employees have been employed to increase self-compassion and may have beneficial consequences in terms of developing levels of self-compassion as well as mental health, subjective wellbeing and psychosocial related outcomes. It appears that self-compassion is particularly sensitive to the interventions that incorporate mindfulness elements or are based on the development of compassion.

The nature of interventions employed will be discussed including their focus on a self-compassion development approach, the guiding definitions of self-compassion that were reported and the validity of measures used to assess levels of self-compassion. The varying content of the interventions detailed across the included studies will be discussed including the variable duration and delivery methods. Finally, the impact of interventions on levels of self-compassion, mental health, subjective wellbeing and psychosocial outcomes detailed in the included studies will be considered before outlining the limitations of the included studies and the implications for both future research and practice.

The nature of interventions to develop self-compassion

The findings of this review suggest that training interventions may be effective in improving self-compassion, however, the level of effectiveness may be moderated by the nature of the training in terms of the content,

duration and delivery methods as well as the emphasis placed on the concept of self-compassion, the guiding definitions employed, and the validity of measures used in the included studies. It is therefore worth considering the various factors that may affect the impact of the training interventions.

i. Self-compassion focus of the included studies

Interestingly, although all the studies reviewed measured self-compassion as an intervention outcome, only three included the term 'self-compassion' in the published journal article title (Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2017; Raab et al., 2015). At this juncture it is worth noting that in the keywords stated of the twelve reviewed studies, seven employ the term 'self-compassion' in the list of searchable terms. (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2017; Mulla et al., 2017; Pidgeon et al., 2014; Raab et al., 2015; Scarlet et al., 2017)

The overall approach of the majority of the studies (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Mulla et al., 2017; Pidgeon et al., 2014; Raab et al., 2015; Shapiro et al., 2005; Slatyer et al., 2017), based on the inclusion of the term in the published journal article titles, is the concept of mindfulness. The published titles of the articles coupled mindfulness with a variety of outcome measures including wellbeing (Bazarko et al., 2013), burnout (Duarte & Pinto-Gouveia, 2016), stress (Marx et al., 2014), and resilience (Pidgeon et al., 2014). Six of the studies used the title of the intervention itself as the key focus in the published journal article title; three of these (Mulla et al., 2017; Raab et al., 2015; Shapiro et al., 2005) employed the use of 'mindfulness based stress reduction', two (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016) employed the use of the 'compassion focused therapy' and one (Scarlet et al., 2017) employed the use of 'compassion cultivation training'.

ii. Guiding definition

Across the studies reviewed, five (Duarte & Pinto-Gouveia, 2017; Marx et al., 2014; Mulla et al., 2017; Pidgeon et al., 2014; Scarlet et al., 2017) employed a guiding definition of self-compassion by Neff (2003a; 2003b; 2007) with specific reference to the concept and measurement of the three core components of self-kindness, common humanity and mindfulness and their meaning to individuals. Two of the studies (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016) provided a guiding definition of self-compassion as proposed in Gilbert's theory of the compassionate mind (2009; 2010) which is not unexpected as the emphasis of the interventions in both these studies aimed to impart the process and theory of Compassion Focused Therapy. This approach is based on the model developed by Gilbert (2000; 2010) to support individuals in a clinical setting, who experience high levels of shame and self-criticism, to improve their psychological wellbeing. One study (Bazarko et al., 2013) also uses Gilbert's (2005) suggestion that self-compassion is a central feature of the self-care required for therapy and other helping professions. Four of the studies (Duarte & Pinto-Gouveia, 2016; Raab et al., 2015; Shapiro et al., 2005; Slatyer et al., 2017) provided no specific guiding definition of self-compassion. However, Raab et al. (2015) places the focus on developing both mindfulness and self-compassion to promote non-judgemental awareness towards one's experiences, with mindfulness identified as an important foundation and component of compassion (Gilbert, 2010; Titch, 2010). Similarly, Duarte & Pinto-Gouveia (2016) hypothesised that the intervention they were testing would increase trait mindfulness and self-compassion, and considered both as independent variables, hence also separating these concepts throughout their study.

In regard to the level of detail provided in the reviewed studies of the Self-Compassion Scale employed, five studies (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Raab et al., 2015; Scarlet et al.,

2017; Slatyer et al., 2017) provided a detailed overview of the measure and the remaining studies provided only very limited information regarding the scale employed (Bazarko et al., 2013; Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Marx et al., 2014; Mulla et al., 2017; Pidgeon et al., 2014; Shapiro et al., 2005).

Only two of the reviewed studies provided both a cited guiding definition of self-compassion and a detailed overview of the Self-Compassion Scale (Duarte & Pinto-Gouveia, 2017; Scarlet et al., 2017).

iii. *Validity of measures*

The inclusion criteria for the current study stated that the outcome measure employed in the appraised studies was required to be a valid and reliable instrument of self-compassion. The instruments used in the selected final studies varied between the 26 item Self-Compassion Scale (SCS) developed by Neff (2003a) and the 12 item Self-Compassion Scale – Short Form (SCS-SF) by Raes, Pommier, Neff and Van Gucht (2011). Both scales seek to assess the three components of self-compassion, self-kindness, common humanity and mindfulness. The items are rated on a five-point Likert-type scale where each item corresponds to either a positive or negative assessment of the three components of self-compassion. Mean scores are calculated for six individual subscales (self-kindness/self-judgement, common humanity/isolation, mindfulness/over-identification) and a total composite total score is obtained by reverse coding the self-judgement, isolation and over-identification items then summing the six subscale means. Across the subscales, the SCS has demonstrated good internal consistency (Cronbach alpha = .77-.78) and test-retest reliability ($r = .80-.93$) (Neff, 2003a), as well as good concurrent validity, convergent validity, and discriminant validity (Neff, Kirkpatrick & Rude, 2007). The internal consistency reliability for a single higher order factor of self-compassion was alpha = .97 (Neff, 2003a; Neff & Pommier, 2013). The SCS-SF has demonstrated good test-retest reliability and internal consistency, closely matching those of the original

version of the SCS, in fact the scale has near perfect correlation with the long-scale questionnaire when examining total scores (Neff, 2003a; Raes et al., 2011). However, in a recent review conducted by Sinclair et al. (2017), the psychometric validity and theoretical consistency of the SCS has been called into question, although this has been refuted by Neff et al. (2017) arguing that the total score of the SCS can be used as an overall measure of self-compassion.

In the studies included in this review, four measured and reported the internal consistency of the scale employed (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Scarlet et al., 2017; Slatyer et al., 2017). Duarte and Pinto-Gouveia (2016; 2017) found the Cronbach alpha to be .92 for the total SCS scale. Scarlet et al. (2017) found the internal consistency for the SCS-SF to be .94. Slatyer et al. (2017) stated no concerns regarding the SCS-SF and its alpha reliabilities ($\alpha > .70$), at the pre-test ($\alpha = .91$), post-test ($\alpha = .90$) and follow-up ($\alpha = .93$) in the measurements conducted during their study.

Four of the twelve studies reviewed here (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Scarlet et al., 2017; Slatyer et al., 2017) employed the SCS-SF as the self-compassion measure. One study (Beaumont & Irons et al., 2016) reported that recent research by Lopez et al. (2015) suggests that the SCS-SF measures two separate factors, self-compassion and self-critical judgement and on this basis, collapsed items to give a measure of two subscales. Self-Compassion scores were calculated by collating data from the self-kindness, common humanity and mindfulness alone. In the remaining eight studies reviewed here, the SCS was employed to measure self-compassion although Duarte and Pinto-Gouveia (2016) used the SCS Portuguese version by Castilho, Pinto-Gouveia and Duarte (2015) which has shown good internal consistency and validity (Castilho et al., 2015).

As Sinclair et al. (2017) also found in their review, the majority of the studies did not report on the SCS subscale scores which may create

difficulty in determining which particular subscales are most affected by the intervention. Additionally, Barnard and Curry (2011b) suggested that MBSR interventions, which formed the majority of the programmes in this review, may only impact on the mindfulness subscale of the SCS rather than having a more general influence on self-compassion. However, in the five included studies that did report on the subscales (Bazarko et al., 2013; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Raab et al., 2015) overall, the findings suggest that the interventions had an impact on the full range of subscales rather than the mindfulness subscale alone. Interestingly, only Bazarko et al. (2013) and Duarte and Pinto-Gouveia (2016) reported a significant increase in the mindfulness subscale from pre to post-intervention.

iv. Intervention length and delivery

The structure, duration and delivery method for the interventions varied considerably across the selected studies in this review. The longest duration for an intervention considered in the current study was reported by Mulla et al. (2017) which took place over the course of sixteen-weeks, with the shortest intervention duration being presented by Beaumont and Irons et al. (2016) at three days. Both of these repeated measure trials demonstrated large effect sizes in terms of increased self-compassion from pre to post intervention.

Although one study (Beaumont & Durkin et al., 2016) provided an individual face to face intervention, the most common format involved group-based training over an eight-week period. However, the actual hours subjects were engaged with a facilitator varied during the eight-week period, for example in Raab et al.'s (2015) study, participants had twenty hours of contact plus a day-of-silence and during Scarlet et al.'s (2017) eight-week intervention, participants engaged with the facilitator for sixteen hours. Assuming that a day equates to eight hours, the interventions with the most face to face hours were delivered by Raab et

al. (2015) and Pidgeon et al. (2014), the latter of which took place over two-and-a-half-day retreat with two four-hour booster sessions at one and four months. The intervention reported as having the shortest number of face to face delivery hours is Slatyer et al. (2017) which took place over a four-week duration.

Although Raab et al.'s (2015) repeated measure results showed a significant increase on overall self-compassion from pre to post intervention, Pidgeon et al.'s (2014) repeated measure results did not reach significance during the same time points. Interestingly, Slatyer et al.'s (2017) non-randomised control trial showed a small to moderate effect size from the brief intervention employed however, Duarte and Pinto-Gouveia (2016) demonstrated a medium effect size with only an additional thirty minutes of face to face facilitated delivery to participants in their six-week intervention. Therefore, it cannot be assumed, based on the evidence assessed in this review, that the duration of the intervention or the number of hours the participants are engaged with a facilitator affects the reported self-compassion outcome.

Additionally, all the interventions reviewed engaged with the participants solely face to face except one, (Bazarko et al., 2013) where a blended format of MBSR was applied combining both classroom and telephonic delivery methods. Previous research has shown no difference in outcomes between MBSR programme participants who attended in-person as opposed to online (Wolever et al., 2012). The delivery mechanism did not appear to affect the results Bazarko et al. (2013) reported, in that the participants showed significant improvement in regard to self-compassion from pre to post intervention and again from post intervention to follow up at four months. In a recent meta-analysis, Spijkerman et al. (2016) found that online Mindfulness Based Interventions have the potential to contribute to improving mental health outcomes, particularly in regard to stress. Furthermore, Finlay-Jones et al.'s (2017) study reported significant increases in overall self-compassion as a result of an online

training intervention conducted with postgraduate psychologists in training and engaged in clinical work. More critically, Eriksson et al.'s (2018) randomised controlled trial indicated that Mindful Self-Compassion training, delivered as a brief web-based intervention, appeared to be effective in regard to increasing self-compassion and alleviating stress and symptoms of burnout amongst practicing psychologists.

To summarise, based on the variations described in the included studies considered in this review, it initially appears that neither the duration of the intervention, nor the number of hours the participants are engaged with a facilitator, nor the intervention delivery mode negatively affected the outcome in terms of self-compassion development. A meta-analysis would enable these suggestions to be clarified further and with greater veracity.

v. *Intervention content*

The work-based training intervention studies reviewed here used a number of different, yet interrelated, approaches to developing self-compassion with the ultimate aim of protection from negative internal or external experiences. In terms of the specific content of the interventions relating to self-compassion development in the reviewed studies, there is a degree of variation. Although in terms of outcome, all the studies show positive change in regard to the development of self-compassion across time.

The inclusion criteria for the current study stated that only studies which provided an intervention that had a sufficient focus on at least one of the three core components of self-compassion would be selected. It is of interest to note that four of the interventions detailed in the included studies (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Scarlet et al., 2017) provided content in their interventions that covered all three of the core components of self-compassion (self-kindness, common humanity and mindfulness) as

defined by Neff (2003b). Duarte and Pinto-Gouveia (2017) reported on the same intervention employed from their 2016 study therefore this is not specifically stated here. All the reviewed studies met this particular inclusion criteria due to the fact they contain extensive mindfulness practice development in the intervention employed. In a recent systematic review and meta-analysis of the impact of mindfulness-based interventions conducted by Lomas et al. (2018) it was found that there was a general association with positive outcomes in relation to most measures, albeit with moderate effect sizes, and that mindfulness training does appear to improve the wellbeing of healthcare professionals.

A number of the studies (Duarte & Pinto-Gouveia, 2016; Pidgeon et al., 2014; Scarlet et al., 2017; Shapiro et al., 2005) stated that the intervention employed also included teaching a 'Loving Kindness Meditation' (LKM) which can be optionally included to incorporate more emotional aspects of experience and is intended to promote affective balance (May et al., 2011). LKM has been demonstrated to increase self-compassion (Shapiro, Brown & Biegel, 2007) and to increase positive affect and mood (Fredrickson et al., 2008). This expands on Fredrickson's (1998) broaden and build theory which suggests that exposing an individual to positive emotions, even for a short period of time, enables them to broaden their outlook and leads to the development of personal resources. Fredrickson et al.'s (2008) study showed that an LKM intervention led to increases in a range of positive emotions and increases in resilience, self-acceptance and mindfulness compared to a control group and these changes were maintained at 15-month follow up regardless of whether or not the participants continued to meditate (Cohn & Fredrickson, 2010). Further research from Hutcherson et al. (2008) also supported a brief LKM intervention (seven-minute training session) which showed significant improvements in feelings towards the self and others compared to a control group.

On this basis, LKM shows promise as an intervention, particularly when used in combination with other intervention strategies (Hofmann et al., 2011). In their review of the literature relating to Loving Kindness Meditation, Boellinghaus et al. (2014) found encouraging preliminary evidence from non-clinical samples that LKM, or courses including LKM and related practices, can increase self-compassion and other-focused concern. While LKM is designed to foster general feelings of friendliness and benevolence toward self and others, rather than compassion for personal experiences of suffering in particular as advocated by self-compassion specific interventions, cultivating this mindset is likely to translate into greater self-compassion (Neff & Dahm, 2015).

vi. Summary of the nature of interventions employed across the studies

Only two studies (Duarte & Pinto-Gouveia, 2017; Scarlet et al., 2017) included in this review can be seen to provide clarity in terms of a guiding definition of self-compassion and the outcome measure employed, as well as measuring and reporting the internal consistency of the scale used. Furthermore, these two studies also cover all three core components of self-compassion as defined by Neff (2003b) in the intervention employed and included the promising additional aspect of the Loving Kindness Meditation which the evidence has shown as likely to increase levels of self-compassion (Neff & Dahm, 2015).

In respect of the results of these two studies, the benefits can be seen in the medium effect size shown in the non-randomised control trial by Duarte and Pinto-Gouveia, (2017) where self-compassion significantly mediated the effects of the intervention on burnout, depression, anxiety and stress symptoms and satisfaction with life, particularly in regard to the mindfulness, isolation and over-identification dimensions of the Self-Compassion Scale. In the original study, (Duarte & Pinto-Gouveia, 2016) significant time and condition interaction effects for self-compassion (common humanity, isolation and total score) were reported along with a

significant increase in the total SCS score and a significant decrease in over-identification were seen in the intervention group. No significant differences between pre and post intervention scores were found in the comparison group in this study. In Scarlet et al.'s (2017) repeated measures study, the results demonstrated that participants showed a significant improvement in self-compassion over time, with a significant linear trend identified at one month follow up. However, in regard to the quality assessment, the two studies do vary somewhat, with Duarte and Pinto-Gouveia's (2017) study offering a lower level of risk in terms of findings.

The wider impact of interventions to develop self-compassion

As well as considering the impact of developing self-compassion may have on the individual in the work environment, the potential mechanism by which self-compassion may mediate other outcomes such as resilience, mental health and subjective wellbeing, psychosocial and physical/biological outcomes is also of interest.

The findings of the included studies show that stress reduced significantly post-intervention in five studies (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Mulla et al., 2017; Shapiro et al., 2005) with effect sizes ranging from small to large. In the one study (Mulla et al., 2017) that considered physical/biological outcomes in relation to stress, the findings reported a significant reduction ($p < .05$) in systolic and diastolic blood pressure and blood cortisol levels. Three of the included studies showed an improved finding in terms of burnout (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Slatyer et al., 2017) with large and small effect sizes reported and one study (Slatyer et al., 2017) found depressive symptoms had significantly reduced post-intervention, albeit with a small effect size. One study (Beaumont & Durkin et al., 2016) saw a significant reduction in anxiety and depression in the intervention group and, although no significant difference was

found between conditions in terms of depression, a positive trend was identified.

The findings of this review also show that one study saw a significant increase in all the subscales of professional quality of life (Slatyer et al., 2017) and one study (Duarte & Pinto-Gouveia, 2016) showed a significant difference on two of the three subscales compared to the control group. One study (Slatyer et al., 2017) also saw a significant improvement in quality of life, one study (Duarte & Pinto-Gouveia, 2016) reported a significant increase in satisfaction with life, one study (Pidgeon et al., 2014) saw a significant improvement in resilience over time and three studies (Duarte & Pinto-Gouveia, 2016; Pidgeon et al., 2014; Scarlet et al., 2017) showed a significant increase in mindfulness post-intervention.

To underpin this discussion, it is worth considering a theoretical model for the impact of training interventions on such outcomes. Many of the existing interventions are based on existing explanatory models of adaptive emotion regulation and resiliency. Gentry and Baranowsky (1998) suggested that interventions that target adaptive emotion regulation and patterns of thinking in response to stressors and foster new ways of relating to work may be central to building resiliency and reducing compassion fatigue (Rees et al., 2018). In one of the studies included in the current review, Slatyer et al. (2017) considered self-compassion to be a key variable to measure as the emotion regulation model of self-compassion suggests that higher self-compassion assists with the ability to regulate emotions in the face of stressful events (Finlay-Jones et al., 2017).

Half of the interventions employed in the final studies in this review (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Mulla et al., 2017; Raab et al., 2015; Shapiro et al., 2005) drew on the mindfulness approach advocated and developed by Kabat-Zinn (1982) in the form of mindfulness-based stress reduction (MBSR). This is not surprising as studies have identified various

mechanisms through which MBSR reduces stress. Firstly, mindfulness has been suggested as improving positive coping strategies and reducing negative coping strategies for stress (Walach et al., 2007). Secondly, MBSR has been found to reduce distractive and ruminative thoughts and behaviours (Jain et al., 2007). A recent meta-analysis conducted by Emerson et al. (2017) suggested that mindfulness-based interventions showed the strongest promise in regard to the intermediary effects on teacher emotion regulation.

In regard to the conceptual overlap between self-compassion and mindfulness as suggested by Duarte and Pinto-Gouveia (2017), the evidence appraised in the current study suggests that self-compassion commonly increases and accompanies improvements during mindfulness-based interventions. Supporting this suggestion, Birnie et al.'s (2010) study, which employed a community sample, posited that changes in self-compassion were predicted by changes in mindfulness. Similarly, Baer, Lykins and Peters (2012) compared the relative predictive utility of self-compassion and mindfulness for psychological wellbeing and found that self-compassion was almost twice as strong a predictor of wellbeing than mindfulness, though both were significant predictors.

Self-compassion may be a mechanism for change in mindfulness-based interventions (Duarte & Pinto-Gouveia, 2017). Enhancing focus on developing self-compassion in mindfulness-based interventions may bring direct benefits in terms of reducing maladaptive coping tendencies and increasing the willingness to accept and experience emotions (Raab, 2014). However, conclusive evidence to support self-compassion as a mediator of the impact of mindfulness-based interventions on psychological outcomes appears to require further research as a previous meta-analysis showed only preliminary support for the concept (Gu et al., 2015).

Overall, the quality of the included studies in this review is variable, however, there is some promising support for the development of self-

compassion, as well as some beneficial outcomes reported in the included studies in terms of health and wellbeing

Limitations and implications for future research:

The major limitation of the research reported in this review, is the shortage of studies evaluating work-based self-compassion training, indicating a need for further empirical research in this area. Furthermore, it is striking that none of the studies selected for this review aimed to solely develop self-compassion as an intervention with an expressed solitary aim. This is somewhat surprising as there has been an exponential increase in research into the psychological health benefits of self-compassion (Bluth & Neff, 2018), yet this is not reflected in the number of published intervention studies relating to a working population at the current time. Specific limitations, many of which are recognised by the authors of the included studies, regarding design, methodology, sample size and diversity, drop-out rates, occupational sector bias, self-report reliance, inconsistent reporting, length of follow-up, varied content and facilitation as well as the implications for future research are outlined below. Finally, the limitations in regard to conducting this systematic literature review are provided.

i. Study design

In regard to the design of the studies presented in this review, the majority employ a repeated measures methodology which limits the rigour of the findings and reduces the possibility of drawing clear conclusions about the efficacy of the interventions reported. This supports the need for researchers to conduct well-designed studies that minimise risks to the interventions and the subsequent findings legitimacy. Only three of the included studies employed a randomised control design (Beaumont & Durkin et al., 2016; Pidgeon et al., 2014; Shapiro et al., 2005).

Beaumont and Durkin et al. (2016) reported a large effect size in their study from pre to post intervention and after controlling for pre-test scores, there was a significant effect for the between groups factor for self-compassion suggesting that the treatment as usual combined with Compassion Focused Therapy was more effective than Treatment as Usual alone in increasing self-compassion in the sample of fire service personnel. However, a limitation to this study identified by the authors was the fact that a No Treatment group wasn't engaged. When controlling for baselines levels, Shapiro et al. (2005) demonstrated significant between group differences being observed in healthcare professionals for the Self-Compassion Scale and compared to the control, the intervention group demonstrated a significant mean increase in self-compassion (22% vs.3%) and in the intervention group 90% demonstrated increases in self-compassion.

Many of the included studies recognise the need to contain a randomly allocated control group to add to the veracity of the findings. In the studies that employed a non-randomised control group (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Slatyer et al., 2017) the limitations to this methodology identified by the authors include non-random significant differences between the two groups that relate to selection bias and the motivation of the participants which may impact on findings. Almost half of the reviewed studies (Bazarko et al., 2013; Marx et al., 2014; Raab et al., 2015; Scarlet et al., 2017; Shapiro et al., 2005) recognised the limitation inherent in the absence of a control group. The lack of control comparison groups in half of the included studies, expose the research to challenge in terms of the reported findings and might suggest less robust design.

ii. Methodology

Future studies would further benefit from considering a range of research strategies (eg. mixed methods, case studies and qualitative inquiry) to enable the development of a deeper understanding of the key features of

the interventions that impact on participants' working lives. This was demonstrated to a limited degree in the few studies that included a post-intervention evaluation but more so in the mixed methods study employed by Marx et al. (2014) which provided a rich seam of qualitative data pertaining to the impact of the intervention on participants' wellbeing and working lives. Beaumont & Durkin et al. (2016) acknowledge that a qualitative arm of inquiry would be beneficial in future research.

iii. Sample size and diversity

Statistical power is an issue in many of the studies reported. Four studies recognise this limitation in terms of underpowered analyses (Beaumont & Durkin et al., 2016; Pidgeon et al., 2014; Shapiro et al., 2005; Slatyer et al., 2017). Sample sizes are generally small (mean $N = 33$) and this is referred to as a limitation in eight of the included studies (Bazarko et al., 2013; Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Mulla et al., 2017; Pidgeon et al., 2014; Shapiro et al., 2005; Slatyer et al., 2017). The small sample sizes in the reported studies considerably limits their ability to be representative of the occupational group under consideration as well as make the findings generalisable to a wider working population.

In regard to the samples employed in the studies reviewed, there were limitations in terms of demographic diversity, with a clear gender bias seen and reported in the majority of the studies (Bazarko et al., 2013; Beaumont & Durkin et al., 2016; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Marx et al., 2014; Mulla et al., 2017; Pidgeon et al., 2014; Raab et al., 2015; Scarlet et al., 2017). Previous research has suggested that women report significantly lower self-compassion than men and differences on the self-compassion subscales indicated that women were more likely than men to engage in self-judgement (Neff, 2003b). This predominance towards lower self-compassion in female participants requires consideration when recruiting a sample to an

intervention which aims to increase self-compassion across an equally mixed gender cohort of participants.

iv. Drop-out rates

It is a recognisable challenge to recruit and retain adequate numbers of participants, in fact three of the included studies (Mulla et al., 2017; Pidgeon et al., 2014; Shapiro et al., 2005) refer to higher than expected sample attrition due to health issues, lack of time and increased responsibility of the participants. Although dropout rates for MBSR interventions are typically less than 20% (Kabat-Zinn, 1982; Kabat-Zinn et al., 1985; Shapiro et al., 1998), Shapiro et al. (2005) reported a 44% attrition rate and Mulla et al. (2017) reported a 26% attrition rate. From an initial sample of 44 human service professionals, Pidgeon et al. (2014) reported that 16 participants in the intervention group completed all time measurements, 20 from the control group completed both pre and post-intervention measures and no control group participants completed the one month follow up assessment due to reported time pressures and absence due to annual leave. Ensuring a large enough sample to provide statistical power should significant numbers of participants drop out of the study, appears to require consideration when recruiting a sample whilst conducting intervention research.

v. Occupational sector bias

It must be noted that the workplace-based literature considered as part of this review is overwhelmingly based in the healthcare sector. This is recognised by the majority of included studies employing a health-related occupational sample (Bazarko et al., 2013; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Marx et al., 2014; Raab et al., 2015; Scarlet et al., 2017; Shapiro et al., 2005; Slatyer et al., 2017). Due to the similarity of the work sectors employed in research considering outcome measures such as self-compassion and health related variables, future research requires

broadening to include other sectors and look to compare diverse professional groups such as healthcare workers and police officers, as suggested by Scarlet et al. (2017). Inter-professional differences in reported outcomes were demonstrated in just one of the included studies (Beaumont & Irons et al., 2016), although three further studies (Marx et al., 2014; Scarlet et al., 2017; Shapiro et al., 2005) also consisted of multi-disciplinary participants rather than an occupationally homogenous sample.

vi. Self-report reliance

It can be seen across the included studies that an over-reliance on self-report measures is present and reported by three of the studies (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017) which may introduce respondent bias. Self-report measures are dependent upon subjects' introspective ability as well as having the potential to be influenced by social desirability, recall bias and selective recall but do provide the opportunity for subjects to give their views, perspectives and opinions (Althubaiti, 2016). Only one study included in this review (Mulla et al., 2017) employed physiological measures (cortisol and blood pressure) to assess stress responses in participants pre and post intervention.

The number of self-report measures employed varied greatly across the reviewed studies and the participants were expected to complete between two measures (Beaumont & Irons et al., 2016; Marx et al., 2014; Mulla et al., 2017) and seven measures (Duarte & Pinto-Gouveia, 2016) at up to three time points. A suggestion for future research from two of the included studies (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017) was to decrease the number of self-report measures so as to reduce attrition at follow up and the risk of increased errors in inference, particularly Type I errors, due to multiple testing.

Two of the studies (Bazarko et al., 2013; Scarlet et al., 2017) suggested the inclusion of independent assessments to consider the impact of the intervention on meaningful work activities and performance outcomes from participants' line managers and direct reports. For samples with a direct caring role, including an assessment of the intervention on the subjects' patient care and requesting patients' views, would also provide tangible evidence to support impact and efficacy, as suggested by two studies (Duarte & Pinto-Gouveia, 2016; Shapiro et al., 2005). It was also suggested in one study (Duarte & Pinto-Gouveia, 2016) that organisational variables could be included to assess the impact of the intervention on measures such as absenteeism and turnover of participating staff.

vii. Inconsistent reporting

Only half the studies included in this review reported an effect size (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Marx et al., 2014; Mulla et al., 2017; Slatyer et al., 2017). This makes quantitative meta-analysis impossible. Three of these studies (Marx et al., 2014; Mulla et al., 2017; Slatyer et al., 2017) reported the effect size in terms of Cohen's *d*, and three studies (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016) reported the effect size in terms of eta squared with Pidgeon et al. (2014) reporting the effect size also using this statistical measure at follow up only. A clear recommendation to future research would be to report effect sizes, preferably in terms of Cohen's *d* or eta squared, rather than solely statistical significance levels.

viii. Length of follow-up

It is of interest to note that although Pidgeon et al. (2014) did not show a significant increase in self-compassion immediately post intervention for the sample of human service professionals, at follow up a large effect size was reported. The intervention group reported significant increases in

mindfulness and self-compassion following the intervention at 1 and 4-months post retreat, and significant improvements in resilience at 4-month follow up. In the intervention group over time, significant changes were reported in the levels of self-compassion observed.

Although all of the included studies, by virtue of considering pre and post-intervention outcome measures are longitudinal in design, the majority did not conduct, or report follow up data collection. Of the studies that did aim to consider the longevity of the intervention effects, the greatest length of time considered post-intervention was six months (Slatyer et al., 2017) which appears limited in scope. Future research would benefit from extending longer periods to measure intervention impact effects across greater lengths of time.

ix. Varied content

As mentioned previously, the studies included in this review typically use content derived from a common base of research and theory (i.e. mindfulness based or general compassion focused interventions). Yet, the training delivery modes nonetheless varied in content (e.g. Mindfulness Based Stress Reduction, Mindfulness Based Cognitive Therapy, Mindful Self-Care and Resiliency, Mindfulness with Metta Training Programme, Compassion Cultivation Training and Compassion Focused Therapy), format (individual face to face sessions, group-based face to face sessions and group telephonic delivery), home practice specifications and length of training as well as time spent engaged in the programme with the facilitator. Employing a standardised intervention regime across studies would enable greater understanding of the evidence to support the development of self-compassion in a working population.

x. Facilitation

In terms of further variation in the reported interventions, half of the studies employed a clinical psychologist as facilitator, which is of interest when the participants did not form a clinical sample (Beaumont & Irons et

al., 2016; Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017; Mulla et al., 2017; Shapiro et al., 2005; Slatyer et al., 2017). However, this is not surprising as most of the interventions employed have been developed for use in clinical settings.

xi. Limitations of Systematic Literature Reviews

As undertaking a systematic literature review adheres to explicit, pre-specified and reproducible methods, in the hope of providing a reliable estimate as to the effects of interventions (Briner and Denyer, 2012), it is important to acknowledge however that there may be inherent potential limitations in the strict systematic application of this prescribed methodology. Daniels (2019) argues that if systematic literature reviews are too technically focused, they may not assist occupational psychology practitioners in their understanding of the field of study. Publication bias can also be present, as is the case in the current systematic review, as grey literature was not included in the conducted searches. There could be selection bias present in the included studies and the cost effectiveness of the interventions reviewed here have not been assessed as this information was not presented in the published research. Researcher bias also requires recognition although this may have been somewhat mediated by the inclusion of additional researchers who assisted with the sifting process undertaken in this review.

Discussion summary

Although all of the studies reviewed showed a positive change in regard to self-compassion development as a result of the interventions employed, it is not possible to draw concrete conclusions about the most effective design and delivery of interventions that aim to increase self-compassion due to their inherent variability. Moving forward, it may be beneficial for comparative research in the workplace to consider designing studies that compare methodological approaches, delivery features and intervention content. This would enable the isolation of effects to determine which elements are affecting which outcome measures. As implementation

fidelity acts as a potential moderator of the relationship between interventions and their intended outcomes, it would be helpful for future research to consider interventions that are uniform in both structure and evaluation, as suggested by Carroll et al. (2007) to improve credibility and validity. In doing so, the results of interventions that aim to develop self-compassion in the workplace could be accumulated and compared via meta-analysis.

Implications for practice

This review offers a number of reflections relevant to practitioners considering the implementation of self-compassion interventions in the workplace. The benefits of developing a self-compassionate workforce will be outlined in light of the findings of this review. Furthermore, suggestions will be offered that enable organisations to adopt a culture of self-compassion and the ways in which practitioners can look to highlight the business case for this approach. Finally, practitioners will be encouraged to be innovative when designing and delivering interventions in organisations and embrace future directions to develop self-compassion in the workplace.

i. The possible benefits of developing self-compassion in the workplace

Individuals all encounter life challenges and self-compassion recognises that adversity is a normal part of the human experience (Neff, 2011). Self-compassion may provide tools and techniques to cultivate self-kindness as opposed to self-criticism, connection to others as opposed to feeling isolated and develop a mindful awareness that allow recognition of thoughts and feelings, without judgement (Neff, 2003b). It may be that many individuals could derive benefit from adopting a self-compassionate approach to address the inevitable challenges of life.

Whilst there is merit in recognising that self-compassion can be encouraged to develop in childhood, interventions that encompass this

approach are showing promise in randomised controlled trials (e.g. Jazaieri et al., 2013; Neff & Germer, 2013) and show improvement in overall quality of life. As a training intervention, self-compassion is starting to show potential in the workplace (Finlay-Jones et al., 2017) and, as this review shows, the twelve included studies all developed the self-compassion levels of participants across time, employing a range of delivery methods and a variety of content. In two of the three randomised controlled trials (Beaumont & Durkin et al., 2016; Shapiro et al., 2005) included in the current review a significant difference was identified in terms of self-compassion development post-intervention compared to the control group.

In regard to improving health and wellbeing, evidence is accumulating which supports the benefits of self-compassion in non-clinical samples (see Zessin et al., 2015 for a review) with particular relevance to psychological health. The studies included in this review showed significant improvement in all of the measures of stress, in half of the measures of burnout, in one of three studies that considered depression and in half of the studies that measured quality of life, satisfaction with life and resilience. Both studies that assessed secondary traumatic stress, which one study (Duarte & Pinto-Gouveia, 2016) termed as 'compassion fatigue', found significant differences pre and post-programme. Therefore, 60% of the combined mental health, subjective wellbeing and psychosocial self-report measures that were employed in the twelve included studies, showed a significant improvement following the intervention provided to the working population subjects.

ii. Organisational adoption of self-compassionate development

Self-compassion may be used to target individuals who are experiencing difficulties with stress and mental health issues at work, however, all individuals have mental health, even when it is not problematic. There may be possible benefits in providing training opportunities to employees

to develop their self-compassion across an organisation, as has been seen in the twelve studies included in this review. This could act as a preventative measure to equip all staff in protecting their health and psychological wellbeing, particularly in relation to reducing the stress encountered, both in life and the workplace. As an approach, self-compassion may offer a possible solution to the findings from a survey of 3700 public sector workers, conducted by Dudman et al. (2015), of which 93% reported feeling stressed at work either all, some or a lot of the time. It may also reduce the stigma attached to mental health, recognising that many may benefit from self-compassion as a means of remaining resilient in the face of the inevitable challenges we will experience and learn to care for ourselves as we would a good friend (Neff, 2003b). This essential tenet could normalise caring for mental health equal to physical health, for individuals across an organisation.

The benefits of a healthy workforce in terms of both fulfilling potential as well as increasing performance and reducing costs are widely known and make financial sense, particularly in times of austerity. Employers recognise that investing in employee health and wellbeing reduces sickness absence and turnover as well as improving engagement, intention to stay and productivity (see Cooper & Bevan, 2014 for an overview). Self-compassion and a compassionate culture could become an integral part of an organisation's working practices, policies and processes where associated behaviours are not only encouraged but required as well as rewarded. Worline and Dutton (2017) suggest that compassion is a unique aspect of excellence for any organisation that wants to fully harness its human capabilities. It is possible that when compassion is at the core of an organisation's values, there could be a measurable increase in productivity and financial performance (Kim et al., 2004).

A study included in this review tentatively supports the premise that to ensure any self-compassion focused intervention and its effects are enduring within the workplace, ensuring managers are on board would be

beneficial (Marx et al., 2014). Furthermore, recognising the opportunity to develop a 'community of practice' for participants after the programme has ended may increase the possibility of compassion development throughout the organisation (Bazarko et al., 2013). To increase uptake of interventions to develop self-compassion, practitioners would be well advised to present the business case and cost-benefit analysis of self-compassion development interventions to commissioners, outlining the return on investment that can be realised in terms of improved health and wellbeing for staff (Bazarko et al., 2013; Slatyer et al., 2017).

Practitioners who operate outside of the public sector, where the majority of the studies in this review took place, are well placed to advocate a compassionate approach to organisations. There is a strong business case for the private sector which highlights improved health and wellbeing that is known to affect performance and productivity. This approach would also appeal to the millennial generation who are focused on work life balance and look to work to benefit them in a myriad of positive ways alongside normal financial compensation. Adopting self-compassion within an organisation could be an authentic driver to attract and retain a high calibre of talent in an industry. More research is required to consider the strength of these arguments in situ and to support the premise that developing self-compassion at work is a viable and profitable enterprise.

iii. Future directions for delivery of self-compassion development in the workplace

A number of the studies included in this review suggest that, in terms of feasibility, to fit an intervention into an already busy schedule, it would be beneficial for practitioners to look to programmes that require less in-person time for self-compassion development interventions (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Shapiro et al., 2005).

Additionally, utilising less face to face contact with facilitators by augmenting online technology would lower costs and result in an even more approachable programme (Bazarko et al., 2013). The timing of the

intervention in organisational terms also requires consideration as many organisations have peak periods during which allowing time for staff to undertake the programme may prove more challenging than at other quieter opportunities (Bazarko et al., 2013; Marx et al., 2014).

To retain participants throughout a programme, interventions would benefit by taking place during working hours and be located onsite at the workplace, although be free from distractions as suggested by four of the included studies (Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Raab et al., 2015; Shapiro et al., 2005). This requires support from line management, which in turn gives participants a sense of value from the organisation for their health and wellbeing as well as a personal sense of achievement in programme completion, in terms of recognised CPD (Duarte & Pinto-Gouveia, 2016; Marx et al., 2014).

The current review has outlined how there is no single effective mode of delivery for self-compassion focused interventions, therefore, practitioners could be encouraged to adopt more innovative solutions that incorporate online technology and blended learning approaches. The literature is starting to reflect this adaptation from more traditional forms of in-person organisational training and development to digital delivery with positive outcomes reported (e.g. Eriksson et al., 2018; Finlay-Jones et al., 2017; Halamova et al., 2018; Krieger et al., 2018). Reducing the stigma related to psychological wellbeing and any barriers to access, organisations could bring self-compassionate approaches into the mainstream, which may not only make financial sense but may also be ethical in practice.

CONCLUSION

This systematic literature review has shown that there is emerging outcome-based evidence to support the suggestion that self-compassion focused interventions may lead to benefits relevant to a working population, however, this remains inconclusive. Although there are tentative indications available to support the development of self-compassion in the workplace, these are limited in range and lack sufficient clarity in terms of effectiveness in relation to intervention content, delivery and assessment.

At a time when many professionals, in a range of sectors and occupations, are finding their working lives increasingly stressful, complex and challenging to the point of resignation, organisations need to consider how to retain and support the health and wellbeing of their most valuable resource. The evidence suggests self-compassion may be a protective factor associated with psychological health, happiness and optimism (Neff, Rude & Kirkpatrick, 2007) and could be particularly relevant to defend against occupational stress (Slatyer et al., 2017). Organisations, to attract and retain the talent that resides in their workforce, therefore may consider the ways in which self-compassion can be built as a foundation for positive staff health and wellbeing.

Supplementary Table 1. Quality assessment of quantitative studies

	1. Was the evaluation well-designed?	2. Was the study carried out appropriately?	3. Was analysis appropriate?	4. Is the evidence consistent?	5. Have ethical issues been taken into consideration	6. Contribution of the research																							
Paper#	Fidelity of delivery clear	Measures appropriate for Pre/post measures same	Assignment to treatment/Random assignment	Comparison/ intervention	Representative sample	Baseline equivalence	Sample size large enough	Attrition less than 65%	Attrition clear	Attrition assessed/reported	Contamination controlled	Consistent and equivalent	Measures valid & reliable	Measures indep of treat	Measures not just self-rept	Analysis methods appropriate	Missing data appropriately treated	Findings made explicit	Evidence for and against	Credibility discussed	Findings related to RQs	Sufficient details of how research explained	Researcher discussed issues raised by study	Adequate discussion of issues such as informed	Consequences of research considered	Approval from an ethics committee	Contribution to existing knowledge or understanding	Total score	
1	✓	✓	✓				✓	✓	✓	✓			✓	✓		✓		✓	✓	✓	✓		✓		✓	✓		18	
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓					✓	✓		23
3	✓	✓	✓	✓		✓		✓					✓	✓		✓		✓	✓	✓	✓					✓	✓		15
4	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓		✓	✓	✓	✓	✓		✓		✓	✓		24
5	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓		✓	✓	✓	✓	✓		✓		✓	✓		24
6	✓	✓	✓		✓		✓	✓	✓	✓			✓	✓		✓		✓	✓	✓	✓	✓	✓		✓	✓	✓		20
																												**	
7	✓	✓	✓				✓	✓		✓				✓	✓	✓		✓		✓		✓		✓			✓		14
8	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓						✓		20
9	✓	✓	✓	✓			✓	✓					✓	✓		✓		✓	✓		✓					✓	✓		14

Supplementary Table 2: Quality assessment of qualitative studies

6	Paper#	1. Is a qualitative methodology appropriate?	
		Research seeks to interpret or illuminate	Qualitative methodology addresses research
✓	✓	Researcher justified research design	Researcher critically examined their own role,
✓	✓	Findings made explicit	Researcher responded to events during the
✓	✓	Discussion of evidence for and against	Sufficient details of how research explained to
✓	✓	Discussion of credibility of findings	Researcher discussed issues raised by study
✓	✓	Discussion of findings in relation to research	Adequate discussion of issues such as
✓	✓	Justified setting for data collection	Consequences of research considered
✓	✓	Clear methods for data collection	Approval from an ethics committee
✓	✓	Justification of methods chosen	Contribution to existing knowledge or
✓	✓	Explicit process of data collection	
✓	✓	Explanation of any modifications during	
✓	✓	Form of data clear	
✓	✓	Explanation of how participants were selected	
✓	✓	Explanation of why participants selected were	
✓	✓	Discussion around recruitment and potential	
✓	✓	Selection theoretically justified	
✓	✓	In-depth description of analysis process	
✓	✓	For thematic analysis, clear how	
✓	✓	Explanation of how data presented were	
✓	✓	Sufficient data presented to support findings	
✓	✓	Findings grounded in/supported by data	
✓	✓	Good breadth and/or depth in findings	
✓	✓	Contradictory data taken into account	
✓	✓	Data appropriately referenced	
✓	✓	Researcher critically examined their own role,	
✓	✓	Researcher responded to events during the	
✓	✓	Sufficient details of how research explained to	
✓	✓	Researcher discussed issues raised by study	
✓	✓	Adequate discussion of issues such as	
✓	✓	Consequences of research considered	
✓	✓	Approval from an ethics committee	
✓	✓	Contribution to existing knowledge or	
24		Total score	
**			

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**DEVELOPING SELF-COMPASSION IN
HEALTHCARE PROFESSIONALS
UTILISING A BRIEF ONLINE
INTERVENTION: A RANDOMISED
WAITLIST CONTROL TRIAL**

ABSTRACT

The level of stress experienced by staff in the healthcare sector is highly prevalent and well documented. Self-compassion has been suggested as an approach that may support the health and wellbeing of individuals and enable them to stay well at work. The purpose of the present study was to examine the effects of a novel brief self-guided online intervention (The Self-Compassion at Work Programme) in a healthcare professional sample. The study aimed to understand whether the intervention improved the health and wellbeing of healthcare professionals and if these improvements were maintained at follow up.

In a randomised controlled trial, 190 healthcare professionals were assigned to an intervention group (n.110) or a waitlist control group (n.80). The Self-Compassion at Work Programme drew on the three core components of self-compassion (self-kindness/common humanity/mindfulness) as defined by Neff (2003b) and consisted of a weekly hour-long training webinar, a reflective daily diary and a key task of fifteen minutes for four weeks. Pre and post-intervention data were collected from both experimental and control groups as well as at one-month follow up from the intervention group.

60% of the sample remained at follow up (n.114) and the results showed a significant group by time interaction ($d=1.46$, $p<.001$) with a large effect size for The Self-Compassion at Work Programme. Results also showed a significant effect of the intervention on all the main study variables and the Self-Compassion Scale subscales. Large effect sizes were seen for overall self-compassion ($d=1.07$) and self-kindness ($d=.95$); medium effects sizes for over-identification ($d=.80$), mental wellbeing ($d=.77$), self-judgement ($d=.77$), mindfulness ($d=.76$), common humanity ($d=.72$), isolation ($d=.59$), personal burnout ($d=.50$) and work burnout ($d=.50$); and small effect sizes for perceived stress ($d=.41$) and client-related burnout ($d=.38$). The findings confirmed the hypothesis that a brief online self-compassion development intervention

would significantly improve the self-reported health and wellbeing of healthcare professionals and these benefits would be maintained at follow up.

This training intervention appeared to be effective in increasing healthcare professionals' self-compassion and mental wellbeing and decreasing perceived stress and burnout. Further research employing an active control condition, more objective metrics such as physiological measures of stress and a longer follow up period of three months would be beneficial. This study shows promise that an affordable and scalable intervention can be effective for healthcare professionals operating in a significantly challenging environment.

KEYWORDS: Self-compassion; online intervention; working population; workplace; stress management; randomised waitlist control trial

PRACTITIONER POINTS:

- The Self-Compassion at Work Programme shows promise as a target intervention in the workplace and should be of interest to healthcare organisations looking to reach a large workforce
- A four-week online self-guided intervention to develop self-compassion in the workplace may offer a flexible, effective and cost saving solution to reducing stress and burnout and improving mental wellbeing
- A busy working population, with no previous experience of self-compassion, may find the intervention accessible and feasible and provide very positive programme evaluations

INTRODUCTION

Research has shown that work environments have become increasingly stressful and challenging for employees. Job stress is highly prevalent across the global economy (De Jonge & Dormann, 2017). Whilst negatively affecting work performance and job attendance, stress can also lead to mental health problems such as depression and burnout (McTernan, Dollard & LaMontagne, 2013) and links between work stress and physical wellbeing have been established, for example chronic low back pain (Bernal et al., 2015) and cardiovascular disease (Terrill & Garofalo, 2012). Psychological health issues can have a significant impact on the economy. The European Agency for Safety and Health at Work calculated that depression, as a result of stress at work, is estimated to have cost 617 billion Euros across the EU (Hassard & Teoh et al., 2014). In 2017, the 'Thriving at Work' Report found that over quarter of a million people leave their roles due to mental health issues in the UK each year (Stevenson, 2017).

Organisations are increasingly recognising the need to establish and maintain the health and wellbeing of their staff, as they have a moral and legal duty of care, to actively look for and manage work-related stress in situ (Donaldson-Feilder et al., 2011). Furthermore, national UK guidelines (NG:13) recommend employers provide an environment that supports staff to proactively defend and augment their own wellbeing (The National Institute for Health and Care Excellence, 2015: 1.3.1.). As such, organisations are increasingly looking for training and development interventions to support wellbeing, ranging from stress awareness (Tetrick & Winslow, 2015), line manager training (Gayed et al., 2018) and mindfulness (Lomas et al., 2017) among others.

Finlay-Jones, Kane and Rees (2017) posit that there is a growing evidence base to suggest that self-compassion offers understanding of individual differences relating to stress management and has been found to provide

a variety of positive outcomes including emotional intelligence (Heffernan et al., 2010) and resilience (Neff & McGehee, 2010).

What is self-compassion?

Kristin Neff's research into the construct of self-compassion, built on the foundations of Buddhist philosophy, considers compassion for self as equally important as showing compassion for others. Self-compassion is understood as, compassion directed inward, relating to oneself as the focus of care and consideration when faced with the experience of difficulty (Neff, 2003b).

Neff's approach combines three interrelated components in both theory and practice of self-compassion. These three aspects are firstly, self-kindness as opposed to self-criticism when difficulty is encountered. Secondly, common humanity which recognises that all human beings experience challenge as opposed to a sense of isolation and difference to others. Thirdly, mindfulness which enables an acknowledgement and acceptance of thoughts and feelings, as they occur in the present moment with no judgement, as opposed to reacting and responding to emotion without due insight (Neff, 2003b).

Mindfulness, as a stand-alone construct, is increasingly employed to support employees' wellbeing in the workplace, with interventions having found to be a useful resource for facilitating employees' health and wellbeing (for a review see Jamieson and Tuckey, 2017). Lomas et al. (2017) in their review of the empirical literature suggested that mindfulness is generally associated with positive outcomes in relation to most measures of occupational wellbeing.

Whilst conceptual and operational overlaps between mindfulness and self-compassion have been identified (Duarte and Pinto-Gouveia, 2017), in that both require approaching difficulty with acceptance so that reactivity is reduced, Neff and Dahm (2015) argue that as a total construct, self-compassion is broader in scope than mindfulness. This is due to the fact

that self-compassion includes the additional elements of self-kindness and common humanity and these are not qualities that are specifically or inherently part of mindfulness practice (Bishop et al., 2004). In this, self-compassion encourages the individual to be free from pain and suffering through the act of soothing self-kindness and recognises that challenges are an inherent part of life for all human beings. Whereas mindfulness in and of itself regards only the internal experience of the individual to create an increased awareness of thoughts and emotions (Germer, 2009). In practice, interventions that specifically look to develop self-compassion draw on a range of practices relating to the conceptually distinct three core components of self-compassion as defined by Neff (2003b) including self-kindness, common humanity and mindfulness. The focus of this study was to operationalise a self-compassion development intervention in the workplace and assess both self-compassion and mindfulness as distinct outcome variables.

The impact of self-compassion on health and wellbeing

Self-Compassion has become increasingly recognised as important to health and wellbeing in non-clinical samples over the last fifteen years (see Zessin et al., 2015 for a review), with particular relevance to psychological health. In a meta-analysis, Macbeth and Gumley (2012) found that self-compassion is a robust predictor of outcomes related to stress and that burnout can also be mediated by self-compassion (Barnard & Curry, 2011a).

Evidence shows that self-compassion can act as a defending factor against a wide range of wellbeing measures including stress, emotional exhaustion and burnout (Duarte et al., 2016; Raab, 2014; Rao & Kemper, 2017). Self-compassion has been shown to be a useful aid for dealing with everyday worries and anxieties (Heffernan et al., 2010). As a result of their experimental study, Adams and Leary (2007) suggested that self-compassion can be enhanced and contribute to wellbeing and decrease

psychological distress. Krieger et al. (2016) suggest that a number of studies have shown self-compassion to be important for resilience and is related to more positive affect and well-being (Krieger et al., 2015; Neff & Vonk, 2009; Trompetter et al., 2016; Zessin et al., 2015). A recent study confirmed that self-compassion emerged as a predictor of several wellbeing indicators in an Italian workforce sample (Voci et al., 2016).

It appears that self-compassion can be cultivated across differing populations (Barnard & Curry, 2011b). Additionally, a number of randomised controlled studies support the view that a variety of training interventions can improve self-compassion in community samples (Jazaieri et al., 2013; Neff & Germer, 2013).

Developing self-compassion in the workplace

Neff and Knox (2017) proposed that self-compassion provides the resilience to successfully manage the suffering inevitably encountered and make such difficulties easier to bare. It is posited that increasing self-care and emotional resilience may be developed by training staff to have compassion for their own challenges (Beaumont & Irons et al., 2016). Furthermore, recent research has suggested that self-compassion mediates the relationship between adult attachment styles and job performance, organisational citizenship behaviours, turnover intentions and emotional exhaustion (Reizer, 2019).

Despite a paucity of evidence, self-compassion shows promise as a target for interventions in the workplace (Finlay-Jones et al., 2017). This premise was supported by the systematic literature review undertaken by Super, Yarker and Lewis (in preparation) which aimed to evaluate the evidence for the development of self-compassion in a working population from a range of organisations and sectors. In two of the three randomised controlled trials included in the review (Beaumont & Durkin et al., 2016; Shapiro et al., 2005) significant improvements were found in terms of

self-compassion development immediately following a workplace intervention compared to a control group.

Although the research for a working population is in its relative infancy, extending the benefits of self-compassion to the workplace have been seen to be effective, with all studies included in the aforementioned review showing improved levels of self-compassion across time. However, the quality of the included studies in the review varied and, due to a lack of consistency in design, content and implementation, firm conclusions could not be clearly drawn. Therefore, there is a clear need for additional high-quality research which employed the most robust design methodologies, adding weight to the body of knowledge regarding the development of self-compassion in the workplace.

Self-compassion interventions in the workplace

Despite the growing evidence for the role of self-compassion, it appears that training in mindfulness forms the core of the literature to date in terms of self-compassion development in a working population, as shown in a recent systematic literature review (Super, Yarker & Lewis, in preparation). The included studies in the review all employed an intervention which imparted self-compassion development via either a mindfulness-based intervention or compassionate focused intervention as opposed to an intervention focusing specifically on developing self-compassion. Only four of the twelve studies in the review (Beaumont & Durkin et al., 2016; Beaumont & Irons et al., 2016; Duarte & Pinto-Gouveia, 2016; Scarlet et al., 2017) provided content in their interventions that covered all three of the core components of self-compassion (self-kindness, common humanity and mindfulness) as defined by Neff (2003b).

It is striking that, at the time of writing, no papers have been identified where self-compassion focused face to face interventions have been utilised to develop self-compassion in a working population. It is worth

noting that participants in previous intervention studies have shown an increase in self-compassion through learning mindfulness on predominantly MBSR and MBCT programmes (Raab et al., 2015; Shapiro et al., 2005) however, when self-compassion is the explicit focus during an intervention, the effect sizes increase significantly (Neff & Germer, 2013).

In general populations, a self-compassion intervention (such as the Mindful Self-Compassion Programme (MSC) developed by Neff & Germer, 2013) has been shown to have a number of positive impacts. In their randomised controlled trial, compared to controls, MSC participants demonstrated a significant increase in regard to their self-compassion levels indicating a large effect size ($d=1.67$). Participants also significantly increased their mindfulness, compassion for others and life satisfaction and showed significant decreases in depression, anxiety, stress and emotional avoidance. All significant benefits were maintained at six months and one year follow up. Furthermore, life satisfaction improved significantly from post-programme to one year follow up suggesting that ongoing practice of self-compassion can improve one's quality of life across time (Neff & Dahm, 2015).

Self-compassion intervention length and delivery methods

i. Intervention length

The MSC programme (Neff & Germer, 2013) consists of two to two-and half-hour face to face sessions over the course of eight weeks as well as a half day meditation retreat and 40 minutes of self-compassion home practice each day. Of the interventions found to have been conducted in the workplace (Super, Yarker & Lewis, in preparation), the length of the interventions differed between 16 weeks (Mulla et al., 2017) and three days (Beaumont & Irons et al., 2016). This variation in length was also the case for the number of hours spent engaged directly with a facilitator.

Despite these differences, there was not enough evidence to suggest that the length of intervention affected the outcome.

Rees et al. (2018) argue that for a working population, a lengthy programme could pose a potential barrier in terms of recruitment and retention for participants. In busy occupational settings, the eight-week duration of conventional interventions may limit their broader take up. They cite evidence of the efficacy of shorter and less intensive mindfulness interventions at work which have shown significant reductions in burnout symptoms and increased resilience in nurses and healthcare workers (see Gauthier et al., 2015; Mackenzie et al., 2006; Sood et al., 2011). Research has previously shown that even brief self-compassion interventions can impact wellbeing significantly (e.g. Adams & Leary, 2007; Leary et al., 2007; Shapira & Mongrain, 2010).

Authors (e.g. Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Shapiro et al., 2005) also recommend that future self-compassion interventions should consider offering training interventions that require less in-person time for participants and be of a shorter duration, so as to reduce the time commitment and strain for staff who are already busy, and which can be more easily fitted into their working schedules.

ii. Intervention delivery

The mode of intervention delivery when applied to a busy working population warrants further consideration. Andersson (2016) suggested that in the previous decade, internet-based interventions have gained significant attention and appear effective when considering various psychological conditions. Krieger et al. (2016) argue that online interventions have many advantages including greater convenience, accessibility, and cost-effectiveness as well as removing travel required and affording a higher level of confidentiality than could be provided in a face to face group setting. It may be the case that participants feel more at ease taking part in an intervention that takes place in their own

comfortable and familiar surroundings (Krusche, Cyhlarova & Williams, 2013).

Online interventions targeting mindfulness have shown promising results in recent meta-analyses (see Cavanagh et al., 2014; Spijkerman et al., 2016). In a randomised controlled trial with a working population sample, the results of an internet-based mindfulness intervention showed significantly lower levels of work-related rumination and fatigue and significantly higher levels of sleep quality when compared to a waitlist control with the effects of the intervention maintained at three and six-month follow up with medium to large effect sizes (Querstret et al., 2017). Online self-compassion interventions may be an effective way forward for organisations looking to support staffs' health and wellbeing.

Krieger et al. (2016) suggest that despite limited studies considering self-compassion online interventions, there are some promising outcomes when testing shorter interventions that do not require any contact with a facilitator (e.g. McEwan & Gilbert, 2015; Kelly et al., 2009; Shapira & Mongrain, 2010). Recent repeated measure design studies in the field have shown significant improvement following online self-compassion development interventions (see Krieger et al., 2016; Rao & Kemper, 2017; Finlay-Jones et al., 2017).

Although the literature lacks randomised controlled trials focusing on self-compassion development interventions employing online delivery with a working population, recent international evidence is emerging. In Sweden, Eriksson et al. (2018) considered the impact of the brief web-based 'mindfulness and compassion with self and others' programme developed by Schenstrom (2017) with a practicing psychologist sample. Their findings report a large effect size ($d=0.86$) for overall self-compassion, a medium effect size ($d=0.59$) for levels of perceived stress and a small effect size ($d=0.44$) for burnout symptoms in the intervention group post-programme. In regard to a general population (non-clinical) sample, both Halamova et al. (2018) in Slovakia reported a significant

increase in self-compassion at two-month follow up and Mak et al. (2018) in China found an increase in mental wellbeing and decrease in psychological stress post-intervention. Initial results suggest promise with regards to utilising a non-traditional method of intervention delivery for self-compassion.

iii. Intervention home practice

The extent to which interventions advocate home practice is variable, yet the nature and quantity of home practice is likely to impact on the effectiveness of the intervention. The MSC programme (Neff & Germer, 2013) recommends daily home practice of 40 minutes duration, this includes formal and informal practice such as compassionate letter writing and making journal entries.

Of those self-compassion interventions utilised within a workplace setting, the majority have recommended home practice (Super, Yarker & Lewis, in preparation). Although not reported in all the interventions, the duration of this home practice ranged from 15 minutes (Duarte & Pinto-Gouveia, 2016; Duarte & Pinto-Gouveia, 2017) to 25/30 minutes (Bazarko et al., 2013).

Self-compassion development in the healthcare sector

Raab et al. (2015) argue that workers in the healthcare sector are particularly vulnerable to stress and burnout (e.g. Harris, 2001; Moore & Cooper, 1996) and that healthcare professionals require support to address the inherent stressors in their work (Shapiro et al., 2005).

Crucially, research has shown that high levels of stress in nurses negatively correlates with quality of care provision (Sarafis et al., 2016). It has been suggested that healthcare workers appear to be most affected by burnout (Schaufeli & Greenglass, 2001) which may result in decreased patient satisfaction, longer patient recovery times, suboptimal patient care and an increase in self-reported medical errors (Shanafelt et al., 2002; Shapiro et al., 2005; West et al., 2006). With a pressing need to

ensure high quality, safe, effective and compassionate patient care (Francis, 2013), interventions to protect staff and sustain caring behaviours are required (Slatyer et al., 2017). In fact, to increase self-compassion and empathy for patients as well as reduce perceived stress and burnout in themselves, self-compassion training is recommended for healthcare workers (Raab et al., 2015). It is therefore not surprising that samples drawn from the healthcare sector dominate the literature pertaining to self-compassion in the workplace. This was reflected in nine of the twelve studies included in the recent systematic review undertaken by Super, Yarker and Lewis (in preparation).

Background to the present study

Against this backdrop, the focus of the present study was placed on healthcare professionals operating in the UK's National Health Service and looked to address their specific needs for the development of self-compassion. It has been argued that developing self-compassion in healthcare professionals may be helpful in cultivating greater self-care and emotional resilience (Beaumont & Irons et al., 2016). Some (e.g. Egan, Mantzios & Jackson, 2017, p.1) take this point further to suggest that not applying the development of self-compassion into workplace culture could be detrimental to healthcare workers, specifically that "the absence of self-care could almost be seen to represent a form of intra-iatrogenic harm".

To date, in an attempt to support healthcare staff, there has been progress in the deployment of mindfulness-based interventions to decrease stress and improve self-compassion and self-care (Shapiro & Carlson, 2009). Baer (2010) argues that improvements in self-compassion levels are enhanced with mindfulness-based interventions. Marx et al. (2014) posit that self-compassion is considered to be a key mediating factor in mindfulness-based interventions supported by the work of Kuyken et al. (2010) and Van Dam et al. (2011). A recent

systematic literature review (Super, Yarker & Lewis, in preparation) supported this premise.

The present study

The present study considered self-compassion development, along with health and wellbeing outcomes, following an online intervention that allowed comparison with a waitlist control. This enabled more robust development of the preliminary evidence presented above. This study employed a randomised controlled design to ensure that any impact identified in the outcomes could be reasonably attributed to the online self-compassion development intervention and be regarded as contributing to the veracity of the emergent findings for this approach.

The study utilised a brief self-compassion development intervention explicitly focused on the three core components of self-compassion (self-kindness/common humanity/mindfulness) as defined by Neff (2003b) to increase self-compassion and mental wellbeing and decrease stress and burnout in healthcare professionals. This brief online intervention, which advocated specified home practice of limited duration, was tested.

Aims and objectives of the present study

The present study aimed to identify the impact of a brief online self-compassion focused intervention on the health and wellbeing of healthcare professionals, in order to understand whether:

- i. Employees health and wellbeing can be improved
- ii. Such improvements can be maintained across time
- iii. A time-limited online intervention with minimal home practice can be effective

Research Questions and Study Hypotheses

i. Intervention Effects

Key research question one for the present study:

The principle research question asked: Can a brief online intervention to develop self-compassion improve the self-reported health and wellbeing of healthcare professionals compared to a waitlist control over time?

Sub Questions:

1. Does a brief online intervention to develop self-compassion increase healthcare professionals' overall self-compassion and subscale scores compared to a waitlist control from pre to post intervention?
2. Does a brief online intervention to develop self-compassion increase healthcare professionals' mental wellbeing scores compared to a waitlist control from pre to post intervention?
3. Does a brief online intervention to develop self-compassion decrease healthcare professionals' perceived stress scores compared to a waitlist control from pre to post intervention?
4. Does a brief online intervention to develop self-compassion decrease healthcare professionals' personal, personal and client-related burnout scores compared to a waitlist control from pre to post intervention?

Hypothesis 1: The self-compassion intervention group would report significantly greater improvements in (a) overall self-compassion, (b) mental wellbeing, (c) stress, (d) personal burnout, (e) work burnout and (f) client-related burnout between baseline (pre-intervention) and immediately after the intervention (post-intervention) relative to the control group.

Hypothesis 2: The self-compassion intervention group would report significantly greater improvements in (a) self-kindness, (b) self-judgement, (c) common humanity, (d) isolation, (e) mindfulness and (f)

over-identification between baseline (pre-intervention) and immediately after the intervention (post-intervention) relative to the control group.

Key research question two for the present study:

The secondary research question asked: Can a brief online intervention to develop self-compassion improve the self-reported health and wellbeing of healthcare professionals at one-month post-intervention?

Sub Question:

5. Does a brief online intervention to develop self-compassion increase healthcare professionals' self-compassion and mental wellbeing and decrease perceived stress and burnout from pre-intervention to follow up?

Hypothesis 3: The self-compassion intervention group would report significantly greater improvements in (a) overall self-compassion, (b) mental wellbeing, (c) stress, (d) personal burnout, (e) work burnout and (f) client-related burnout between baseline (pre-intervention) and one-month after the intervention (follow up) relative to the control group.

Hypothesis 4: The self-compassion intervention group would report significantly greater improvements in (a) self-kindness, (b) self-judgement, (c) common humanity, (d) isolation, (e) mindfulness and (f) over-identification between baseline (pre-intervention) and one-month after the intervention (follow up) relative to the control group.

ii. Mode of Delivery Effects

The waitlist control group received the intervention after the waitlist period ended employing a slightly different mode of delivery to the intervention group. The intervention group received the relevant programme materials and a link to the appropriate webinar on a weekly basis for the four-week programme period. They also received reminders in weeks 3 and 4 to listen to the webinars before the programme period ended. The waitlist control group received the entire programme (links to all four webinars and all programme materials) in a single email, with no

reminders or further engagement with the researcher throughout the four-week programme period. Although the delivery mode for both groups could be fairly described as less intensive than other common modes of intervention delivery, i.e. face to face sessions with a facilitator, for the purposes of the present study the intervention group who received the programme will be referred to as using a high intensity delivery mode (HID) and the waitlist control group who received the programme will be referred to as using a low intensity delivery mode (LID).

Key research question three for the present study:

The tertiary research question asked: Can a brief online intervention to develop self-compassion be equally effective and improve all the self-reported health and wellbeing outcomes following the intervention for healthcare professionals regardless of delivery mode?

Sub Question:

6. Does a brief online intervention to develop self-compassion increase healthcare professionals' self-compassion and mental wellbeing and decrease perceived stress and burnout following the intervention for both modes of delivery and be equally effective?

Hypothesis 5: There will be no significant difference between the high intensity delivery group (HID) and the low intensity delivery group (LID) in (a) overall self-compassion, (b) mental wellbeing, (c) stress, (d) personal burnout, (e) work burnout and (f) client-related burnout at post-intervention.

Hypothesis 6: There will be no significant difference between the high intensity delivery group (HID) and the low intensity delivery group (LID) in (a) self-kindness, (b) self-criticism, (c) common humanity, (d) isolation, (e) mindfulness and (f) over-identification at post-intervention.

METHOD

Design

A randomised waitlist control design was employed. Intervention participants were assessed pre-intervention (Time (T) 1) and post-intervention (T2) and were followed up at one month (T3) post-intervention. Waitlist control participants were assessed at T1, T2 and T3 (wait period) as well as additionally at (T4) immediately following the intervention.

Quality assurance

A quality assurance review was undertaken by the author prior to the study taking place. This was based on the checklist provided by Snape et al. (2017) for quantitative research. The quality of the design, study undertaking, data analysis, narrative approach taken, ethical considerations and the contribution of the research to the evidence base for wellbeing were all taken into account by the author. This was then reviewed and agreed by another researcher. A summary of the checklist in response to this research study is provided in the form of a supplementary table following the conclusion.

Ethical approval

Ethical approval was provided for this research by Kingston University. The Code of Human Research Ethics (British Psychological Society, 2014) were reviewed and adhered to and the study complied with GDPR restrictions regarding the use of data.

Procedure

i. Recruitment

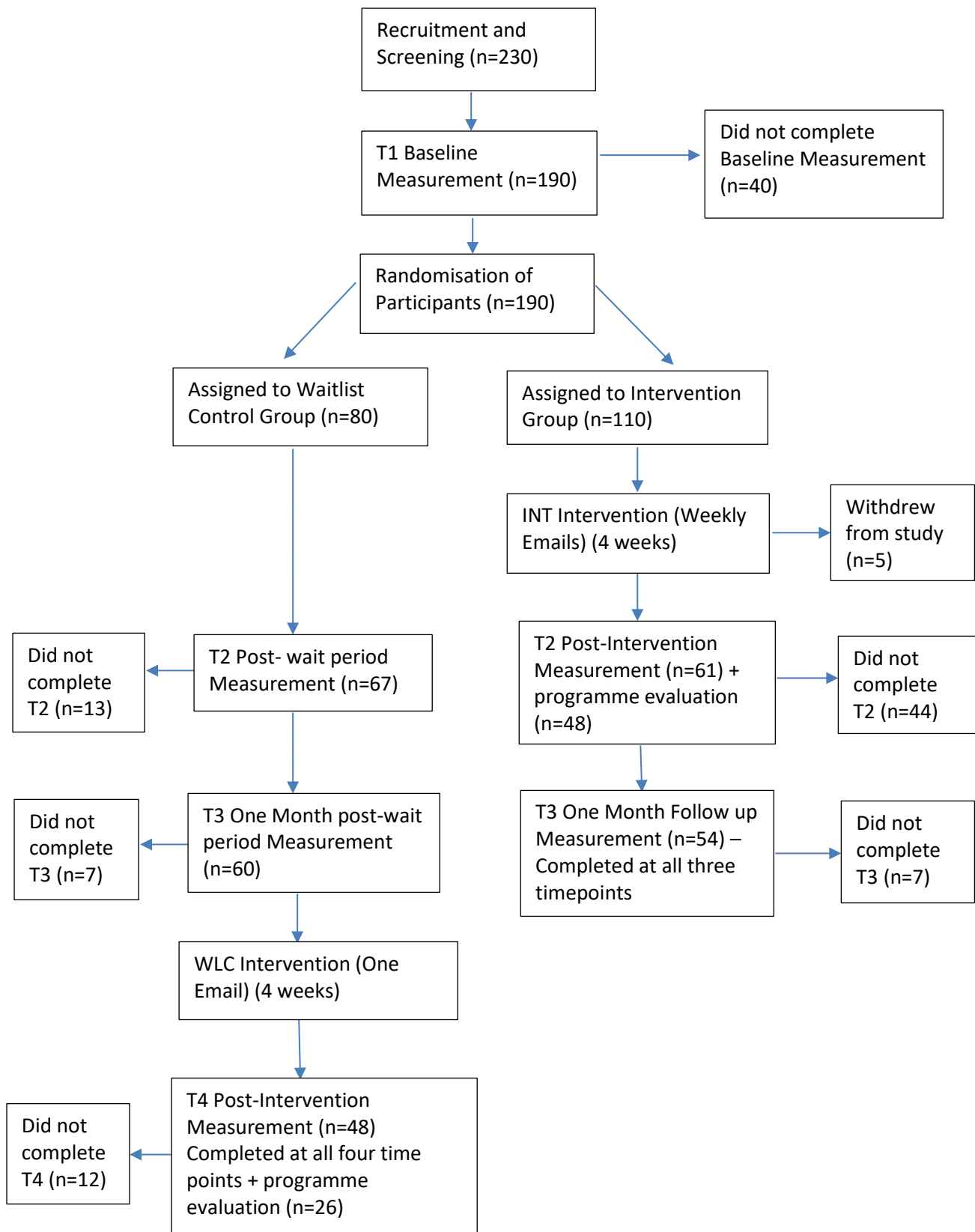
Information regarding the study was circulated to five NHS organisations the author had a previous working relationship with. A flyer to promote the study was provided to the NHS organisations and distributed to healthcare professionals using internal e-learning platforms. The flyer

requested that any interested healthcare professionals contact the author via the email address provided and a cut-off date indicated the date by which all expressions of interest needed to be received by.

ii. Participants

Those participants who responded to the study flyer (n=424) were sent eligibility screening and informed consent forms via email. A total of 230 participants returned the eligibility screen and informed consent forms and were therefore included in the study. Of these, 190 completed the baseline measures, 110 were randomly allocated to the intervention group and 80 were assigned to the control condition (See Figure 1 for a study attrition information). Five participants from the intervention group withdrew from the study during the four-week programme period citing lack of time due to increased responsibilities at work. The mean age of the participants who took part in the study at T1 was 41.74 years old and 90% were female.

Figure 1. Flow chart to show the number of participants who completed each phase of the study and attrition



iii. Eligibility screening

Individuals who expressed an interest in taking part in the study were sent an eligibility screen to complete and an informed consent form to agree, date and sign via email. To be eligible for inclusion, participants had to meet and agree to the following criteria: over 18 years of age; work a minimum of 30 hours per week as a healthcare professional in an NHS organisation; live and work in the UK; provide the name of their employing organisation which specified that this was to enable their CPD certificate to be provided directly to them by their organisation at the study completion; willing and able to provide a personal email address that is checked regularly; have access to the internet at home via a computer/laptop/tablet/smartphone with a working windows media player; have no previous formal training of self-compassion; able to commit up to two hours per week for the duration of the four-week programme starting in 2019. This two hours was specified to include: Listening and watching each of the four-weekly webinars within 24 hours of receiving the link; privately completing a reflective daily diary (five minutes each day) for four weeks; privately completing one key task each week (15 minutes each week); completing a questionnaire up to three times during the study period and returning the questionnaires within three working days; completing an evaluation at the end of the programme and returning this to the researcher within three working days.

When the participants correctly returned the eligibility screen and informed consent they were included in the study. This was confirmed via email and dates of receipt for the first (T1) and second (T2) questionnaires and the two start dates for the programme were provided. All applications to the study, included participants and the personal email addresses they provided were logged in an excel spread sheet by the researcher.

iv. Randomisation process

Once the participants had completed the pre-intervention measures, they were allocated to the intervention and waitlist control using a block randomisation process. This followed a similar protocol to that described by Halamova et al. (2018). To protect for attrition in the intervention group, blocks of eleven participants were allocated to the intervention group followed by blocks of eight participants who were allocated to the waitlist control group. This process was repeated until all participants were assigned to one of the two groups. Participants were blinded to group membership, as they were unable to choose which condition they were allocated to, and they were not aware that the study was designed as a waitlist control trial. They were simply informed that there were two programme start dates. All recruitment was conducted online via email and therefore participants had no contact with one another throughout the study.

Participant attrition

In total, 230 participants were initially recruited into the study having successfully completed eligibility screening and informed consent, of these 190 completed baseline measures at T1. Figure 1. provides the attrition during the present study. In the intervention group, 55.5% completed all the measures at T2 and 49.1% completed at T3. In the waitlist control group, 83.8% completed all the measures at T2, 75% completed at T3 and 60% completed at T4. Overall, 53.7% of the participants from both groups who completed the questionnaires at T1 remained throughout the study. However, at post-test (T2), 67.4% of participants remained in both the intervention and waitlist control groups. This is comparable with other similar online intervention studies (i.e. 44% remaining at post-test in Halamova et al. (2018) and 54% remaining at post-test in Finlay-Jones et al. (2017)).

Participants who did not complete the questionnaires at T1 and/or T2 were excluded from the analysis. The findings of the study are reported as per protocol results and therefore only participants who completed all the measurements at all the time points are included in the analyses.

Various approaches to prevent missing data and attrition were enacted by the author throughout the study period with reference to the guidelines suggested by Dziura et al. (2013). All the operational aspects of the study were tested with a pilot group which enabled both the intervention and design to be tested and amended accordingly prior to the study taking place. To encourage retention throughout the present study, a follow up period of one month was selected as Scarlet et al. (2017) suggested that longer periods of follow up have been seen to have an impact on attrition rates in a healthcare worker sample. Recent online mindfulness intervention studies such as Ivrtzan et al. (2016) and Krusche et al. (2013) have also employed a one-month follow up period. From the point of recruitment, all participants were provided with the dates the questionnaires would be issued and the suggestion was made to book up to thirty minutes in their diaries to complete these essential aspects of the study.

To limit the burden on participants, the four selected measures were combined into one electronic questionnaire using Qualtrics software, which also issued reminders on the day of the submission deadline to unfinished respondents at all of the time points. The questionnaire itself required responses to all the included items, to reduce the possibility of missing data. The waitlist control participants were informed that they would retain their place on the programme by completing the measures at three time points prior to receiving the intervention so as to reduce attrition in this group.

Throughout the study, the author closely monitored engagement with the programme and the completion of the questionnaires and sent email reminders regarding programme and study engagement, using

encouragement and expressed appreciation. Reasons for withdrawal from the study were logged by the author. A CPD credit was offered to all participants who completed the questionnaire at all the time points. Following the study period, the author sent the names of the participants from both groups, who completed the questionnaires as instructed to prompt the organisations to issue the appropriate CPD credit. The eligibility screen informed participants that their employer would be informed if they completed the questionnaires so as to gain their permission for their name to be shared with their employing organisation.

Measures

Cronbach alphas were calculated from the whole sample (intervention and waitlist control combined) to test reliability of the measures at all time points. The internal consistencies of the scales are individually reported below. These were found to be sufficient, as they were all above the acceptable .70 value.

Self-Compassion: Measured by the 26-item Self-Compassion Scale (SCS; Neff, 2003a) which is a valid and reliable self-report measure that is widely used to assess self-compassion across six subscales: Self-kindness, Self-Judgement, Common Humanity, Isolation, Mindfulness and Over-Identification. The SCS is rated on a 5-point Likert Scale ranging from 1 (almost never) to 5 (almost always) with sample items including, "I try to be understanding and patient towards those aspects of my personality I don't like" and "When something painful happens I try to take a balanced view of the situation." The SCS has adequate construct and convergent validity (Neff, 2003a). The SCS has been used in a previous study of MBSR in a health professional sample (Shapiro et al., 2005) as well as in prior studies of self-compassion among nurses (Heffernan et al., 2010; Bazarko et al., 2013). Cronbach's α in the present study were as follows: Overall Self-Compassion, T1=.94, T2=.96, T3=.96, T4=.94; Self-Kindness subscale, T1=.87, T2=.90, T3=.91, T4=.90; Self-Judgement subscale, T1=.82, T2=.88, T3=.89, T4=.86;

Common Humanity subscale, T1=.84, T2=.87, T3=.87, T4=.84; Isolation subscale, T1=.84, T2=.85, T3=.85, T4=.87; Mindfulness subscale, T1=.80, T2=.84, T3=.85, T4=.79; Over-Identification subscale, T1=.81, T2=.84, T3=.84, T4=.70.

Mental Wellbeing: Measured by the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; Tennant et al., 2007) which is used to measure mental wellbeing and comprises of 14 positively worded statements such as, "I've been dealing with problems well" and offers 5 response categories ranging from 1 (none of the time) to 5 (all of the time). The questionnaire scoring ranges from 14-70 with higher scores indicating higher mental wellbeing. The WEMWBS has been shown to have good content validity and shows high correlations with other scales of mental health and wellbeing, furthermore, it has near-normal population distribution with no ceiling effects (Powell et al., 2013). The short form of the scale has been used in previous studies with student midwives (Beaumont & Durkin et al., 2016) and community nurses (Durkin & Beaumont et al., 2016). The full 14 item version of the WEMWBS has been employed with mental health managers undertaking an e-learning intervention (Stansfeld et al., 2015) and from a general population sample undertaking CBT via an internet intervention (Powell et al., 2013). Cronbach's α in the present study were T1=.90, T2=.93, T3=.93, T4=.92.

Stress: Measured by the Perceived Stress Scale (PSS; Cohen et al., 1983) to assess cognitive appraisals of stress. The PSS is a 10-item self-report measure of respondents' sense of control over challenging events and their ability to cope with them. Respondents rate the frequency of perceived stress and each item is scored on a 5-point scale with responses ranging from 0 (never) to 4 (very often) with a sample item including, "How often have you felt confident about your ability to handle your personal problems?" The scale has indicated good concurrent validity and internal consistency (Hewitt et al., 1992). The PSS has been used in prior studies to measure intervention impact in healthcare professional

populations (Bazarko et al., 2013; Marx et al., 2014; Shapiro et al., 2005). Cronbach's α in the present study were T1=.84, T2=.89, T3=.89, T4=.88.

Burnout: Measured using the Copenhagen Burnout Inventory (CBI; Kristensen et al., 2005) a validated self-report 19-item scale which measures personal, work, and client-related burnout. The CBI has been found to have high internal reliability (Kristensen et al., 2005) and has been used with healthcare professionals in previous studies (Bazarko et al., 2013; Scarlet et al., 2017). Cronbach's α in the present study were as follows: Overall CBI total, T1=.90, T2=.92, T3=.92, T4=.93; Personal Burnout, T1=.87, T2=.89, T3=.91, T4=.88; Work Burnout T1=.78, T2=.83, T3=.81, T4=.82; Client-Related Burnout, T1=.86, T2=.90, T3=.90, T4=.90.

Demographic information collected at T1 asked for the participants' gender, including the option of non-binary, and current age in years. Sample specifics for each of the study groups are presented in Table 2.

A post-programme evaluation was also employed to assess satisfaction with the webinar content; usefulness of the programme support materials including the information sheet provided prior to the programme, the daily reflective diary, the key tasks and the action plan; satisfaction with the programme process including the online delivery method of the programme, the email communications received throughout the programme and the four-week timescale in which the programme was delivered; suggestions for improvement to the programme in terms of content and delivery; ability to apply learnings from the programme to day to day life; recommendation of the programme to colleagues both within their own and in other healthcare organisations. A mixture of quantitative ratings using a 1-7 Likert Scale and qualitative feedback using free text comments were included. The post-programme evaluation was developed via an iterative process and modelled on Kirkpatrick (1976). The evaluation was originally based on the specific requirements

of healthcare organisations from previous programmes delivered by the author and developed further in discussion with the research team.

Intervention

i. Design

Key aspects of the intervention employed in the present study are derived from the Mindful Self-compassion (MSC) Programme developed by Neff and Germer (2013). The MSC training programme is modelled on the structure of Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982). Neff and Germer (2013) recommended that various populations should be specifically targeted to receive training in self-compassion, including healthcare professionals. This suggestion will be addressed in the present study which developed an adapted version of the MSC core curriculum for the intervention as well as considering exercises available from previous publications including Halamova et al. (2018), Rockman & Hurley (2015), Gilbert (2010), Neff (2017) and Germer (2016) (See Table 1 for Intervention content).

To the best of the author's knowledge, at the time of conducting the study, no protocols exist for a brief online self-compassion development programme. As a result, the author developed a novel four-week online self-compassion development programme. As well as MSC training, the programme was based on the author's practice in the field and extensive review of the self-compassion development literature (e.g. Germer, 2009; Neff, 2011; Neff & Germer, 2018), compassionate mind training (e.g. Gilbert, 2010) and compassion development in the workplace (e.g. Worline & Dutton, 2017). Key elements of these approaches were adapted to provide individuals with a full grounding in the theory and practice of the three core components of self-compassion according to Neff's (2003b) conceptualisation whilst ensuring the programme was applicable to the workplace.

Due to the sample being drawn from a busy working population, only brief practical elements which focused on the development of each of the three core components of self-compassion, were incorporated into the programme. Within the webinars the meditation practices were relatively brief and short informal practice suggestions, to incorporate self-compassion into daily habits such as mindful walking, showering and teeth brushing, were presented. The programme encouraged participants to revisit the online webinars as many times as they wished to enable the webinars to be broken down into shorter time periods and to allow participants to repeat various practical elements if they wished. Participants received diary-based worksheets to promote reflective practice for five minutes each day for the duration of the intervention. A weekly key task of approximately 15 minutes was provided to embed learning and application relating to the content of each of the webinars. A brief action plan was also provided to enable participants to chart their progress throughout the programme and was action oriented in focus. The action plan consisted of two reflective questions for the participants to consider which asked what actions they had started as a result of attending the programme and what actions they considered required further development.

A full cycle of the resultant brief online self-compassion development programme was piloted with a group of ten senior healthcare professionals based in the nursing directorate of a large NHS Trust from 5th September 2018 until 22nd October 2018. All participants completed the eligibility screen and informed consent, pre and post measures (including the Self-Compassion Scale (Neff, 2003a) and Warwick-Edinburgh Mental Well-Being Scale (Tennant et al., 2007)) and a post-programme evaluation. Half of the pilot group participants took part in semi-structured telephone interviews with the author to provide additional qualitative feedback on both the content and process of the pilot study. The pilot programme provided useful information that enabled a further

iteration of the brief online self-compassion development programme to be established and included in the present study.

ii. ***Delivery and length of intervention***

The intervention consisted of a four-week online programme delivered through four pre-recorded training webinars (ranging from 43-54 minutes in duration). Each webinar included an audio feed and slide deck which required an internet connection and windows media player to access. The webinars were accessible on any computer, tablet or smartphone via the links that were emailed to participants each week. The online platform the author subscribes to allows log in details (name, date, time) to be recorded for each webinar, but no listening duration. The author logged all participant registrations for the four weekly webinars throughout the intervention condition.

Accompanying worksheets to record daily reflections, key tasks and an action plan to record progress were provided and these could be completed either by hand or electronically. None of the accompanying documents were returned to the author, these were for the participants use only, to embed the ideas presented during the webinars and enhance personal learning.

The intervention group received the programme via email once a week. Each email provided programme instructions, the link to the relevant weekly webinar, the diary and key task for that week. In the first week, the action plan was attached and in subsequent weeks the email offered a reminder to complete this. In week three, participants who had not yet registered for any of the webinars were sent an email reminder encouraging them to complete at least two of the webinars which may benefit them in terms of developing self-compassion and allow them to complete the questionnaires and evaluation. In week four, participants who had only registered for one of the four webinars were sent an email reminder to complete another webinar before the end of the programme.

Immediately following the four-week intervention period, the intervention group were asked to complete a post-programme questionnaire and evaluation (T2). One month after the programme ended, the intervention group were asked to complete the follow up questionnaire (T3).

The waitlist control group were advised to complete the questionnaires at T1, T2 and T3 to retain their place on the programme. Those participants who returned their questionnaires at all the relevant time points, received the programme on the second start date, the entirety of which was provided in one email. This included the programme instructions links to the four webinars, daily diary sheets and key tasks for four weeks and an action plan. Immediately following the four-week intervention period, the waitlist control group were asked to complete a post-programme questionnaire and evaluation.

At the conclusion of the study, all the remaining participants were thanked for participating. They were encouraged to speak to family and friends regarding their experience of the self-compassion programme and to seek out other participants from their organisation with whom they could develop a community of practice. It was suggested that they do this by making contact with their HR Department and requesting an available space to initiate meeting with fellow participants following the conclusion of the self-compassion development intervention.

There was no direct contact between the participants and the author, other than to resolve any issues via email. There were no incentives provided, although at the start of the study, participants were advised that if they completed the programme in full and returned all the questionnaires and the evaluation in the advised timescale, their employing organisation could provide them with one CPD credit.

iii. *Intervention content*

The content of the intervention, both webinars and weekly tasks are detailed in Table 1.

Table 1. Intervention content – The Self-Compassion at Work Programme

Week/Webinar Title (Time)	Content (audio feed and slide deck)	Key Task
One – Introduction to the Self-Compassion at Work Programme (43 minutes)	<ul style="list-style-type: none"> • Welcome to the Programme • Facilitator introduction • Overview of webinar and practical instructions • Introduction to context and need for self-compassion in our lives and in the workplace – the times we live and work in, human cost and impact of the context • The benefits that can be derived from developing self-compassion • Overview of self-compassion three components with brief practice examples of each: <ul style="list-style-type: none"> ➢ Clenched fist exercise (self-kindness/self-criticism) ➢ 'Just like me' exercise (common humanity/isolation) ➢ 'Three-minute breathing space' (mindfulness/over-identification with emotion) • An overview of bringing self-compassion to work • An outline of the Self-Compassion at Work Programme going forward • Reminder of daily diary and week's key task 	Self-Compassion Break Practice (based on Halamova et al., 2018; Neff, 2017; Rockman & Hurley, 2015, p.7)
Two – Introduction to Self-Kindness (45 minutes)	<ul style="list-style-type: none"> • Overview of the webinar and practical instructions • Brief reminder of self-compassion and scientific background • Difference between self-compassion and self-esteem • Affectionate breathing exercise • Our tendency towards self-criticism explained • Introduction to self-kindness • Self-kindness exercise • Developing self-appreciation • A self-kindness meditation • Physical and emotional self-care suggestions, tips and techniques • Reminder of daily diary and week's key task 	Self-Compassion Letter Writing Exercise (based on Gilbert, 2010, p.81; Halamova et al., 2018; Neff, 2017; Rockman & Hurley, 2015, p.22)
Three – Introduction to Common Humanity and Mindfulness	<ul style="list-style-type: none"> • Overview of the webinar and practical instructions • Introduction to common humanity and connecting with others • Loving kindness meditation 	Self-Compassion in Daily Life Exercise (adapted

(54 minutes)	<ul style="list-style-type: none"> • Expectations, perfectionism and social comparisons • Reflective review exercise • Cultivating a deeper connection to others with tips and techniques • Introduction to mindfulness • Research to support mindfulness • Mindful moments for stress and anxiety practice exercise • Dealing with our emotions and managing difficult feelings • Gently exploring feelings in practice • Informal daily mindful practice suggestions with tips and techniques • Reminder of daily diary and week's key task 	from Germer, 2016; Halamova et al., 2018;)
Four – Developing and Maintaining Self-Compassion Practice (51 minutes)	<ul style="list-style-type: none"> • Overview of the webinar and practical instructions • A recap of the three core components of self-compassion • Self-appreciation • Meditation on self-acceptance • Compassion for others • The impact and reduction of compassion fatigue • Giving and receiving compassion meditation • Self-compassion and emotional resilience • Self-compassion statements exercise • Reframing exercise to help in difficult situations • Maintaining self-compassion beyond the programme • Celebrating our successes • Expressing gratitude • Guided reflective practice • Our self-compassion journey as it continues • Reminder of daily diary and week's key task • Thanks for attending and close programme 	Gratitude List Exercise – adapted from Appreciation Exercise by Gilbert (2010) and Appreciating Yourself Exercise by Germer & Neff (2013); Halamova et al., (2018) and Rockman & Hurley (2015).

RESULTS

Statistical analysis

i. Missing data

Prior to running the statistical analyses, the data was examined for missing data and statistical assumptions were tested. As all the items in the questionnaires distributed during the study were presented to the participants as forced choice, there is no missing data at the item level.

However, during the T1 questionnaire completion period, it came to the author's attention that a typing error had occurred in a single item in the Self-Compassion Scale of the distributed questionnaire. The error was immediately amended and the 56 participants who completed the incorrect version of the item were noted. Multiple methods were considered to assist with this missing data but in discussion with another researcher, mean replacement of the single item for the participants affected was decided upon. To introduce the least amount of bias into the model, the mean of the remaining items on the affected subscale at T1 were calculated for each of the 56 participants. Each participants' calculated subscale mean was used to replace the single item.

ii. Attrition

Overall, 51% (56 participants) of the intervention group and 40% (32 participants) of the waitlist control group failed to complete the questionnaires at all of the time points and were therefore excluded from the analyses. In terms of attrition at T3, there were 114 completers and 76 dropouts. When considering the statistical differences between the completers and dropouts on each of the demographic measures (age and gender) and the T1 baseline measures (DVs), the MANOVA results indicated that there was a statistically significant difference between the completers and dropouts Wilks' $\lambda = .92$, $F(8,181)=2.02$, $p=.047$, $\eta^2=.08$. The between-subject effects revealed that the participants in each of these groups differed significantly on mean age, (completers=43 and

dropouts=40, $p=.033$); on mean personal burnout, (completers=53.98 and dropouts=60.47, $p=.021$); and on mean perceived stress, (completers=19.62 and dropouts=21.84, $p=.012$). Therefore, the dropouts were younger and had higher scores on stress and personal burnout at baseline than the participants who completed to T3.

iii. Bivariate correlations

Bivariate correlations were performed for the main study variables, and the Self-Compassion Scale subscales, for both the intervention and waitlist control group who completed at T1-T3 time points. Means, standard deviations and zero-order correlations for the T1 study and demographic variables are reported in Table 2. As can be seen, work burnout was significantly and negatively correlated with age and mindfulness was significantly and negatively correlated with gender. Therefore, the demographic variables (age and gender) were controlled for in all subsequent analyses considering the main study variables and the subscales of the Self-Compassion Scale.

Table 2. Means, standard deviations and zero-order correlations for study and demographic variables at Time 1

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. OSC	2.83	0.75	-													
2. SK	2.57	0.89	.85**	-												
3. SJ	2.83	0.92	.88**	.69**	-											
4. CH	2.73	0.94	.76**	.70**	.49**	-										
5. IS	3.02	1.04	.80**	.52**	.72**	.48**	-									
6. MDF	2.97	0.85	.77**	.78**	.56**	.61**	.41**	-								
7. OID	2.87	0.95	.79**	.49**	.78**	.41**	.68**	.45**	-							
8. MWB	46.90	7.43	.67**	.58**	.55**	.48**	.61**	.51**	.49**	-						
9. STR	19.62	5.52	-.63**	-.55**	-.58**	-.36**	-.51**	-.45**	-.59**	-.58**	-					
10. PBO	53.98	18.94	-.65**	-.54**	-.60**	-.42**	-.57**	-.50**	-.51**	-.62**	.62**	-				
11. WBO	49.28	15.49	-.49**	-.40**	-.42**	-.35**	-.48**	-.34**	-.39**	-.47**	.48**	.68**	-			
12. CRBO	33.95	20.38	-.25**	-.17	-.19**	-.18	-.26**	-.20*	-.23*	-.31**	.24*	.29**	.61**	-		
13. GEN	-	-	-.14	-.12	-.09	-.12	-.06	-.19*	-.13	-.07	.14	.15	.02	-.08	-	
14. AGE	43.37	10.91	.14	.09	.11	.14	.04	.17	.13	.05	-.09	-.08	-.22*	-.17	-.01	-

NB. N=114. OSC = Overall Self-Compassion; SK = Self-Kindness; SJ = Self-Judgement; CH = Common Humanity; IS = Isolation; MDF = Mindfulness; OID = Over-Identification; MWB = Mental Wellbeing; STR = Stress; PBO = Personal Burnout; WBO = Work Burnout; CRBO = Client-Related Burnout; GEN = Gender; AGE = Age.

*p<.05. **p<.01.

iv. Preliminary analyses

The skewness and kurtosis of the dependent variables were within the acceptable range and the data met the homogeneity of variance assumption for the main outcome variables at T1. When considering the statistical differences between the intervention group and waitlist control group on each of the demographic measures (age and gender) and the T1 baseline measures (DVs), the MANOVA results indicated Wilks' $\lambda = .98$, $F(8,181) = .53$, $p = .835$. This shows that the intervention group and the waitlist control group were not significantly different in terms of demographics or DVs at baseline. The demographic data for participants in the intervention and waitlist control groups who completed the study at T1 is displayed in Table 3.

Table 3. Demographic characteristics at Time 1 for study groups

Demographics	INT	WLC
Total number of participants	110	80
Total number of females (%)	100 (91%)	71 (89%)
Total number of males (%)	9 (8%)	9 (11%)
Total number of non-binary (%)	1 (1%)	0
Age range in years	24 - 60	22 - 64
Mean Age in years (SD)	41.81 (10.40)	42.33 (11.06)

Analytic approach

All statistical analyses were conducted in SPSS Version 24 (IBM Corp, 2016).

i. Intervention effects

Firstly, the analytic strategy adopted in relation to H1 and H3 was completed, whereby the effectiveness of the intervention was tested in comparison to the waitlist control group. To this end, a multivariate analysis of covariance (MANCOVA) analysis was conducted. The MANCOVA assessed the degree to which the self-compassion development intervention affected overall self-compassion, mental wellbeing, perceived stress and individual burnout variables and if these changes were maintained at follow up. The MANCOVA analysis sought to assess the effect of the intervention over time by comparing the intervention and waitlist control groups against each other (between-subjects factor) at T1, T2 and T3 (within-subject factor) whilst controlling for age and gender (covariates); therefore, the outcome variables in these analyses were assessed before, after and at follow up from the intervention for the intervention group and before and during the wait period for the waitlist control group.

Secondly, the analytic strategy regarding H1, H2, H3 and H4 sought to assess the effectiveness of the intervention on all of the available study variables individually, including the subscales on the Self-Compassion Scale, across time for both the intervention and waitlist control groups. This allowed the assessment of the effect sizes (Eta squared (η^2) and Cohen's d (d)) on each of the DVs at the most detailed level possible. A series of individual mixed measures ANCOVAs using pairwise comparisons were conducted, with age and gender as the covariates, group membership (intervention group and waitlist control group) as the between-subjects factor and time (T1, T2 and T3) as the within-subjects factor. The Bonferroni correction was applied in SPSS to take into account multiple comparisons.

A further series of repeated measures ANCOVAs were conducted to assess the within group effect sizes (η^2 and Cohen's d) between time points (T1 vs. T2; T1 vs. T3; T1 vs. T4) for all the individual outcome variables,

including the subscales on the Self-Compassion Scale, for the intervention and waitlist control groups. The Bonferroni correction was applied in SPSS to take into account multiple comparisons.

Cohen's *d* (1988) was transformed from the partial eta squared results using an online calculator (available at Psychometrica) to additionally show the size of the effect according to conventions where a Cohen's *d* of above 0.2, 0.5 and 0.8 indicates a small, medium and large effect size respectively. Cohen's *d* (Cohen, 1988) is reported alongside η^2 as the systematic literature review undertaken by Super, Yarker and Lewis (in preparation) recognised the disparity in the included studies in regard to reporting effect sizes, hence partial eta squared and *d* are both reported in the present study.

ii. Mode of delivery effects

The analytic strategy adopted in relation to H5 assessed whether the two modes of delivery were equally effective so as to assess whether the delivery of the intervention could be affected in practice by the way in which the programme was provided to participants. Initially, a between groups MANCOVA was conducted to assess whether the mode of delivery affected the main outcome variables (self-compassion, mental wellbeing, perceived stress, personal burnout, work burnout and client-related burnout) following the intervention. The intervention group outcome variables at T2 were merged with the waitlist control groups' outcome variables at T4 to create a new variable considering mode of delivery. The MANCOVA analysis sought to assess the effect of the two modes of delivery using delivery mode as the between-subjects factor whilst controlling for T1, age and gender (covariates). The mode of delivery of the self-compassion development intervention was considered as high intensity for the intervention group (HID) and as low intensity for the waitlist control group (LID), this therefore served as the between-subjects factor. For the mode of delivery effect analyses, as the waitlist control

group had received the intervention at T4, they will therefore be referred to as the low intensity delivery group (LID) within this set of results.

The analytic strategy employed for H6 sought to assess the effect of the mode of delivery on the Self-Compassion Scale subscales. This was to enable the consideration of the effect sizes on each of these DVs at the most detailed level available following the intervention. This was investigated via a series of between groups analyses of covariance (ANCOVAs) using pairwise comparisons with T1, age and gender as the covariates and mode of delivery (HID and LID) as the between-subjects factor. The Bonferroni correction was applied in SPSS to take into account multiple comparisons.

Intervention analysis results

i. Intervention effects

To test H1 which stated that the self-compassion intervention group would report significantly greater improvements in (a) overall self-compassion, (b) mental wellbeing, (c) stress, (d) personal burnout, (e) work burnout and (f) client-related burnout between baseline (pre-intervention) and immediately after the intervention (post-intervention) relative to the control group and H3 which stated that the self-compassion intervention group would report significantly greater improvements in (a) overall self-compassion, (b) mental wellbeing, (c) stress, (d) personal burnout, (e) work burnout and (f) client-related burnout between baseline (pre-intervention) and one-month after the intervention (follow up) relative to the control group, a multivariate analysis was run with the T1, T2 and T3 scores. This was to test the degree to which the self-compassion development intervention affected overall self-compassion, mental wellbeing, perceived stress and personal, work and client-related burnout in the intervention and waitlist control groups across time.

The MANCOVA revealed a significant overall group by time interaction, Wilks' $\lambda = .65$, $F(12,99)=4.41$, $p<.001$, $\eta^2=.35$, when all the main study

and demographic variables were included. According to Cohen's (1988) guidelines, partial eta squared (η^2) values of .01, .06 and .14 constitute small, medium and large effect sizes, respectively; therefore, the effect size of the self-compassion development intervention was large ($d=1.46$).

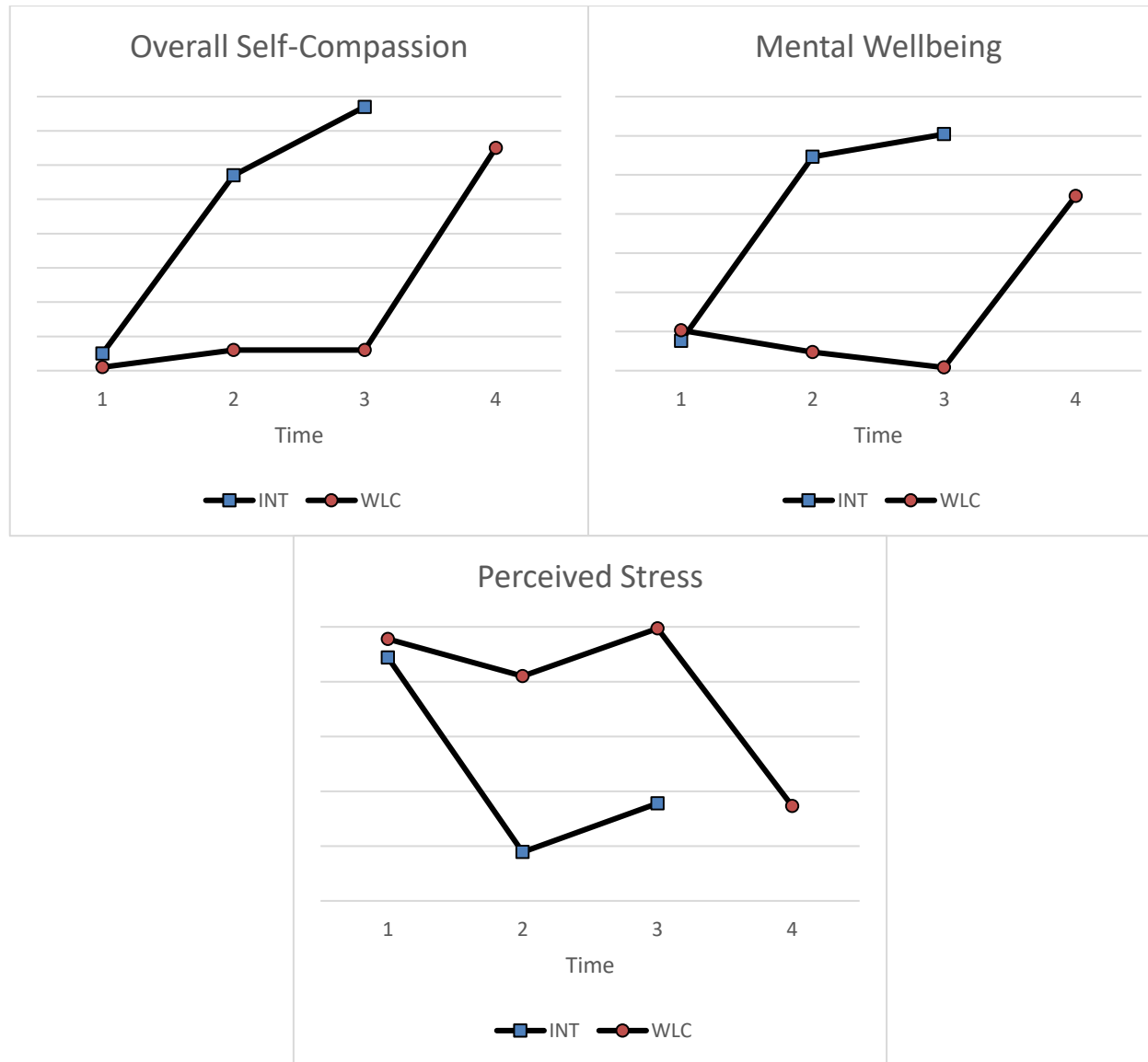
Means and standard deviations for the main outcome variables (self-compassion, mental wellbeing, perceived stress, personal burnout, work burnout and client-related burnout) for the participants in both the intervention group and the waitlist control group who all took part at T1, T2 and T3 ($n=114$) are reported in Table 4. The charts provided in Figure 2 display the mean improvements shown for the main outcome variables over time for both the intervention and waitlist control groups.

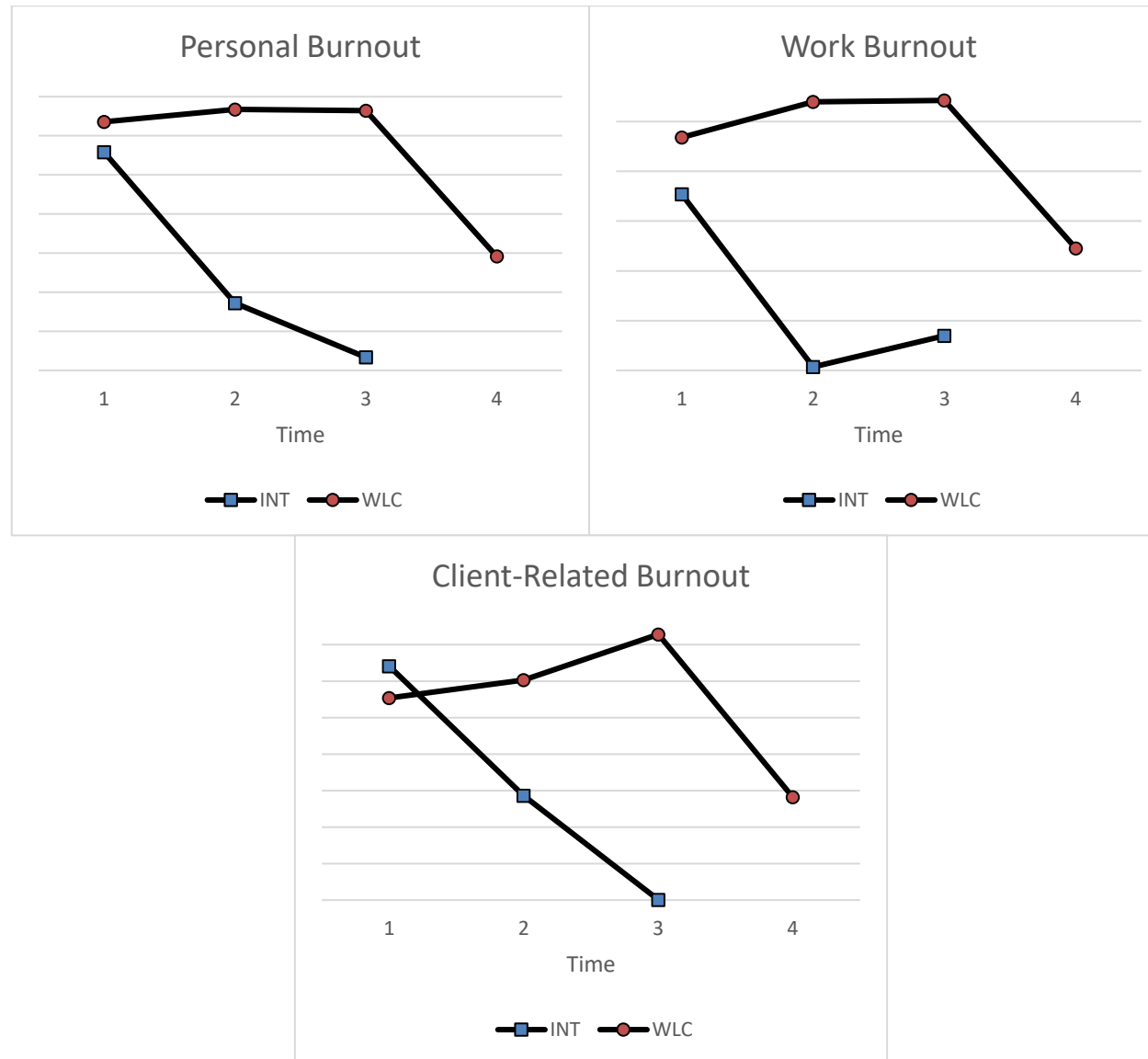
Table 4. Means and standard deviations for the study variables

Variable	Intervention Group (n=54)		Waitlist Control Group (n=60)	
	M	SD	M	SD
Self-Compassion				
Time 1	2.85	0.75	2.81	0.76
Time 2	3.47	0.76	2.86	0.75
Time 3	3.57	0.72	2.86	0.77
Time 4 (n=48)	N/A	N/A	3.45	0.66
Mental Wellbeing				
Time 1	46.76	7.34	47.03	7.56
Time 2	51.46	7.38	46.47	7.67
Time 3	52.04	7.39	46.08	8.31
Time 4 (n=48)	N/A	N/A	50.46	8.56
Perceived Stress				
Time 1	19.44	5.38	19.78	5.68
Time 2	15.89	6.13	19.10	5.96
Time 3	16.78	6.60	19.97	6.43
Time 4 (n=48)	N/A	N/A	16.73	6.26
Personal Burnout				
Time 1	53.16	18.58	54.72	19.38
Time 2	45.45	19.14	55.35	20.40
Time 3	42.67	19.89	55.28	21.16
Time 4 (n=48)	N/A	N/A	47.83	19.71
Work Burnout				
Time 1	48.08	14.60	50.36	16.30
Time 2	41.14	17.70	51.79	16.45
Time 3	42.39	16.95	51.85	15.83
Time 4 (n=48)	N/A	N/A	45.91	17.37
Client-Related Burnout				
Time 1	34.41	20.24	33.54	20.68
Time 2	30.86	21.83	34.03	21.40
Time 3	28.01	20.93	35.28	20.90
Time 4 (n=48)	N/A	N/A	30.82	21.57

N.B. From T1-T3 Total N=114. Time 1 = Before treatment for Intervention Group and Waitlist Control Group; Time 2 = After treatment for Intervention Group, Wait period for Waitlist Control Group; Time 3 = One-month Follow Up for Intervention Group, Wait period for Waitlist Control Group; Time 4 = After Treatment for Waitlist Control Group (n=48); N/A = Not Applicable

Figure 2. Change in mean scores for intervention and waitlist control groups for main study outcome variables





N.B. From T1-T3 Total N=114. Time 1 = Before treatment for Intervention Group and Waitlist Control Group; Time 2 = After treatment for Intervention Group, Wait period for Waitlist Control Group; Time 3 = One-month Follow Up for Intervention Group, Wait period for Waitlist Control Group; Time 4 = After Treatment for Waitlist Control Group (n=48)

To assess the effect size (η^2 and Cohen's d) of the intervention on the main study variables individually across time, for both the intervention and waitlist control groups, a series of individual mixed measures ANCOVAs were conducted using pairwise comparisons, with age and gender as the covariates, group membership (intervention group and waitlist control group) as the between-subjects factor and time (T1, T2 and T3) as the within-subjects factor. The Bonferroni correction was applied in SPSS to take into account multiple comparisons. As the Mauchly's test for the ANCOVAs was significant, which therefore violated the assumption of sphericity, the Greenhouse-Geisser results are reported as these provide the adjustment to the degrees of freedom used in the calculation of the F-ratio. Results showed a significant effect of the intervention for the intervention group on all the main study outcome variables: overall self-compassion, ($F(2,179)=31.82, p<.001, \eta^2 = .22$); mental wellbeing, ($F(2,209)=16.33, p<.001, \eta^2 = .13$); perceived stress, ($F(2,202)=4.70, p=.012, \eta^2 = .04$); personal burnout, ($F(2,210)=6.75, p=.002, \eta^2 = .06$); work burnout ($F(2,206)=6.86, p=.002, \eta^2 = .06$); and client-related burnout ($F(2,215)=4.01, p=.020, \eta^2 = .04$).

When considering the effect sizes for all the study variables, according to Cohen (1988) the effect sizes of the intervention were large for overall self-compassion ($d=1.07$); medium for mental wellbeing ($d=.77$), personal burnout ($d=.50$) and work burnout ($d=.50$); and small for perceived stress ($d=.41$) and client-related burnout ($d=.38$). These findings show that immediately following the self-compassion development programme, participants who took part in the intervention group reported significantly greater improvements in overall self-compassion and mental wellbeing and significantly lower levels of stress, personal burnout, work burnout and client-related burnout relative to the control group. Therefore H1 (a-f) is supported. Furthermore, these improvements were seen from baseline to follow up for the intervention group relative to the waitlist control group, therefore H3 (a-f) is supported.

To test H2 which stated that the self-compassion intervention group would report significantly greater improvements in (a) self-kindness, (b) self-criticism, (c) common humanity, (d) isolation, (e) mindfulness and (f) over-identification between baseline (pre-intervention) and immediately after the intervention (post-intervention) relative to the control group and to test H4 which stated that the self-compassion intervention group would report significantly greater improvements in (a) self-kindness, (b) self-criticism, (c) common humanity, (d) isolation, (e) mindfulness and (f) over-identification between baseline (pre-intervention) and one-month after the intervention (follow up) relative to the control group, a series of individual mixed measures ANCOVAs using pairwise comparisons were conducted, with age and gender as the covariates, group membership (intervention group and waitlist control group) as the between-subjects factor and time (T1, T2 and T3) as the within-subjects factor. The Bonferroni correction was applied in SPSS to take into account multiple comparisons. As the Mauchly's test for the ANCOVAs was significant, which therefore violated the assumption of sphericity, the Greenhouse-Geisser results are reported as these provide the adjustment to the degrees of freedom used in the calculation of the F-ratio. The results showed a significant effect of the intervention for the intervention group on all the Self-Compassion Scale subscales, namely, self-kindness ($F(2,208)=24.58, p<.001, \eta^2 = .18$); self-judgement, ($F(2,184)=16.48, p<.001, \eta^2 = .13$); common humanity, ($F(2,201)=14.31, p<.001, \eta^2 = .12$); isolation, ($F(2,182)=9.39, p<.001, \eta^2 = .08$); mindfulness, ($F(2,215)=15.82, p<.001, \eta^2 = .13$); and over-identification, ($F(2,195)=17.51, p<.001, \eta^2 = .14$).

When considering the effect sizes for the Self-Compassion Scale subscale variables, according to Cohen (1988), the effect sizes of the intervention were large for self-kindness ($d=.95$) and over-identification ($d=.80$) and medium for self-judgement ($d=.77$), mindfulness ($d=.76$), common humanity ($d=.72$), and isolation ($d=.59$). These findings show that immediately following the self-compassion development programme,

participants who took part in the intervention group reported significantly greater improvements in self-kindness, self-judgement, common humanity, isolation, mindfulness and over-identification relative to the control group. Therefore H2 (a-f) is supported. Furthermore, these improvements were seen from baseline to follow up for the intervention group relative to the waitlist control group, therefore H4 (a-f) is supported.

A further series of repeated measures ANCOVAs were conducted to assess the within group effect sizes between time points (T1 vs. T2; T1 vs. T3; T1 vs. T4) for all the individual outcome variables, including the subscales on the Self-Compassion Scale, for the intervention and waitlist control groups. The Bonferroni correction was applied in SPSS to take into account multiple comparisons. These ANCOVA results are reported in Table 5. For the intervention group, a significant difference was seen from baseline to immediately post-programme for all the study variables except client-related burnout. There was also a significant difference identified from baseline to one-month follow up for the intervention group for all the study variables, except work burnout and client-related burnout. For the waitlist control group, as expected, there were no significant differences detected during the wait period. However, all the outcome variables, except all those related to burnout, had significantly improved from baseline to post-programme. See Table 5 for the effect sizes (η^2 and Cohen's d) across the time points for all the individual outcome variables, including the subscales on the Self-Compassion Scale, for the intervention and waitlist control groups.

Table 5. Repeated measures ANCOVA results and within group effect sizes for outcome variables

Outcome Variable	INT Group (n=54)		WLC Group (n=60)	
	F	n 2 (d)	F	n 2 (d)
Overall Self-Compassion				
T1 vs. T2	26.58***	.18 (.95)	.07	.00 (0)
T1 vs. T3	28.91***	.22 (1.01)	.11	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	22.49***	.18 (.93)
Self-Kindness				
T1 vs. T2	25.80***	.18 (.93)	.15	.00 (0)
T1 vs. T3	21.76***	.17 (.91)	.04	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	18.82***	.15 (.85)
Self-Judgement				
T1 vs. T2	21.05***	.15 (.84)	.58	.00 (0)
T1 vs. T3	28.40***	.22 (1.05)	1.00	.01 (.19)
T1 vs. T4 (n=48)	N/A	N/A	16.33***	.14 (.79)
Common Humanity				
T1 vs. T2	14.74***	.11 (.71)	.17	.00 (0)
T1 vs. T3	12.10***	.10 (.68)	.01	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	16.38***	.14 (.79)
Isolation				
T1 vs. T2	18.80***	.14 (.80)	.57	.00 (0)
T1 vs. T3	14.61***	.12 (.75)	.20	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	10.17**	.09 (.63)
Mindfulness				
T1 vs. T2	12.23***	.09 (.64)	.00	.00 (0)
T1 vs. T3	17.86***	.15 (.83)	.01	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	9.03**	.08 (.59)
Over-Identification				
T1 vs. T2	12.80***	.10 (.66)	.07	.00 (0)
T1 vs. T3	18.72***	.15 (.85)	.15	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	14.62***	.12 (.75)
Mental Wellbeing				
T1 vs. T2	11.83***	.09 (.63)	.23	.00 (0)
T1 vs. T3	15.06***	.13 (.76)	.44	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	5.04*	.05 (.44)
Perceived Stress				
T1 vs. T2	14.23***	.11 (.70)	.04	.00 (0)
T1 vs. T3	5.35*	.05 (.45)	.03	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	6.91**	.06 (.51)
Personal Burnout				
T1 vs. T2	5.21*	.04 (.42)	.06	.00 (0)
T1 vs. T3	8.00**	.07 (.55)	.02	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	3.19	.03 (.35)
Work Burnout				
T1 vs. T2	5.33*	.04 (.42)	.24	.00 (0)
T1 vs. T3	3.76	.04 (.38)	.26	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	1.71	.02 (.26)
Client-Related Burnout				
T1 vs. T2	.89	.01 (.17)	.01	.00 (0)
T1 vs. T3	2.87	.03 (.33)	.21	.00 (0)
T1 vs. T4 (n=48)	N/A	N/A	.36	.00 (0)

N.B. From T1-T3 Total N=114. INT = Intervention Group; WLC = Waitlist Control Group; T = Time; T1 = Before treatment for Intervention Group and Waitlist Control Group; T2 = After treatment for Intervention Group, Wait period for Waitlist Control Group; T3 = One-month Follow Up for Intervention Group, Wait period for Waitlist Control Group; T4 = After treatment for Waitlist Control Group (n=48); N/A = Not Applicable.

*p<.05. **p<.01. ***p<.001.

ii. Mode of delivery effects

To test H5 which stated that there will be no significant difference between the high intensity delivery group (HID) and the low intensity delivery group (LID) in (a) overall self-compassion, (b) mental wellbeing, (c) stress, (d) personal burnout, (e) work burnout and (f) client-related burnout at post-intervention, a multivariate analysis (MANCOVA) was conducted. This was to assess whether the mode of delivery affected the main outcome variables (self-compassion, mental wellbeing, perceived stress, personal burnout, work burnout and client-related burnout) for the two groups (HID and LID) immediately following the intervention. The means and standard deviations for the HID group (intervention group) at T2 and the LID group (waitlist control group) at T4 are reported in Table 4.

The MANCOVA was not significant for mode of delivery (Wilks' $\lambda = .98$, $F(6,94) = .33$, $p = .917$, $\eta^2 = .02$) when the main study and demographic variables were included. This shows that the mode of delivery did not affect the outcome variables in the present study. The effect size of the intervention on the delivery mode (HID and LID) was small ($d = .29$) therefore suggesting that high intensity delivery and low intensity delivery were equally effective in terms of delivery modes. As the high intensity and the low intensity groups showed no significant differences in regard to overall self-compassion, mental wellbeing, perceived stress, personal burnout, work burnout or client-related burnout from pre to post-intervention, therefore H5 (a-f) is supported.

A series of between groups ANCOVAs were conducted to test H6 which stated that there will be no significant differences between the high intensity delivery group (HID) and the low intensity delivery group (LID) in (a) self-kindness, (b) self-criticism, (c) common humanity, (d) isolation, (e) mindfulness and (f) over-identification at post-intervention. Results showed that there were no significant differences between the HID and LID groups on any of the Self-Compassion Scale subscale variables at

post-intervention: Self-kindness $F(1,99)=.36$, $p=.551$, $n^2=.00$); self-judgement, ($F(1,99)=.32$, $p=.57$, $n^2=.00$); common humanity, ($F(1,99)=.39$, $p=.54$, $n^2=.00$); isolation, ($F(1,99)=1.89$, $p=.172$, $n^2=.02$); mindfulness, ($F(1,99)=.04$, $p=.84$, $n^2=.00$); and over-identification, ($F(1,99)=.10$, $p=.75$, $n^2=.00$). These findings support the suggestion that the high intensity delivery and low intensity delivery of the self-compassion development programme were equally effective in terms of delivery modes in relation to the Self-Compassion Scale subscales. As the mode of delivery showed no significant difference between the high intensity and low intensity groups on self-kindness, self-judgement, common humanity, isolation, mindfulness or over-identification, following participants' attendance on the programme, therefore, H6 (a-f) is supported.

Post-programme evaluation outcomes

The intervention group were asked to complete a post-programme evaluation at T2. 46% of the intervention group ($n=48$) responded to this request. Likert scales were provided for a range of questions regarding content and process relating to the Self-Compassion at Work Programme with 1 representing the lowest rating and 7 representing the highest rating. Frequencies were recorded for the likert scale responses and are reported here in terms of the average rating across each of the questions.

In terms of satisfaction with the content of the programme, the respondents reported an average rating of 6.10 for webinar one, 6.13 for webinar two, 6.14 for webinar three and 6.18 for webinar four. Qualitative responses were also requested in regard to the programme content, an example of a participant's response is, "the right amount of information provided, the pace was good, the examples were very useful and I especially enjoyed the guided meditation."

The programme support materials were also considered. When asked how useful the participants found the information sheet that was provided prior to the intervention, respondents reported an average rating of 5.74.

When asked how useful the participants found the reflective daily diary provided with the programme, respondents reported an average rating of 5.04. When asked how useful the participants found the key tasks they were required to complete each week, respondents reported an average rating of 5.48. When asked how useful the participants found the action plan that was provided with the programme, respondents reported an average rating of 5.19. The qualitative responses were varied in response to the programme support materials, although most were positive. An example of a participant's response is, "it was difficult initially to set time aside for the daily diary but once it became habit it was most helpful."

The process undertaken in delivering the programme was also considered. When asked how satisfied participants were with the online delivery method of the programme, respondents reported an average rating of 6.06. When asked how satisfied participants were with the email communications they received during the programme, respondents reported an average rating of 6.29. When asked how satisfied participants were with the four-week timescale in which the programme was delivered, respondents reported an average rating of 5.48. The qualitative responses varied although many were positive. An example of a participant's response is, "online method accessible. 4-week timetable good time frame" but also a number of respondents would have liked more time to progress through the programme and an example of a participant's response is, "I think the programme could have been delivered over a longer timescale so that ideas and practices had time to embed before new content was added."

In terms of programme application, participants were asked how able they were to apply the learnings from the programme to their daily lives, to which respondents reported an average rating of 5.36. A number of respondents provided qualitative responses to the programme application question and an example is, "by implementing your guidance from the programme I believe I was able to recover my emotional wellbeing more quickly by sitting quietly and practicing self-kindness." Other participants

specifically related their comments to a work context and an example of this is, "I have found the programme very useful and immediately put some of the exercises/techniques into my everyday life, particularly in the working environment" and "during the programme I was kinder to myself and better able to cope with stressful situations at work."

Participants were asked if they would recommend this programme to colleagues both within their organisation and in other healthcare organisations and 92% of respondents said that they would. Comments from participants included, "I hope it gets rolled out across the NHS as it really would benefit working relationships to create more caring work environments and improve people's mental wellbeing" and, "I think that this training should be offered to all people working in mental health" and, "I would definitely recommend this programme. I think this should be offered to everyone as part of a trust's responsibility for employee welfare and wellbeing. I think it could be used within team supervision to create a more caring atmosphere in my place of work and should form part of appraisals."

Finally, participants were encouraged to offer suggestions and recommendations as to how the self-compassion at work programme could be improved. These recommendations included extending the programme timescale to accommodate a busy work/life schedule and making a selection of the webinar content available via podcast, or another downloadable method, to allow for greater engagement flexibility.

DISCUSSION

Overview

The present study aimed to identify the impact of a brief online self-compassion focused intervention on the health and wellbeing of healthcare professionals, in order to understand whether the employees' health and wellbeing can be improved, whether such improvements can be maintained across time and if a time-limited online intervention with minimal home practice can be effective. To ensure robust design and confidence in the findings, the study employed a randomised controlled trial comparing the outcomes of the intervention group with a waitlist control.

The current study utilised a novel brief online self-compassion development intervention explicitly focused on the three core components of self-compassion (self-kindness/common humanity/mindfulness) as defined by Neff (2003b) to increase self-compassion and mental wellbeing and decrease stress and burnout in healthcare professionals. The intervention, which advocated specified home practice of limited duration, was tested and the results are discussed. This discussion will be framed in terms of the key results including the overall intervention effects, the effects on all the outcome measures when compared and contrasted to similar intervention studies employing the same outcome measures as used in the present study and the mode of delivery effects observed. The strengths and limitations of the study will be presented along with the implications for future research and practice development before conclusions are drawn.

Key results

i. Overall intervention effects

The between group results of the present study show that a brief online intervention to develop self-compassion can significantly improve the self-reported self-compassion, health and wellbeing of healthcare professionals relative to a waitlist control over time (Wilks' $\lambda = .65$,

$F(12,99)=4.41$, $p<.001$, $\eta^2=.35$) with a large effect size ($d=1.46$). The intervention group showed significantly improved outcomes than the waitlist control group in regard to both the main study variables and the Self-Compassion Scale subscale outcomes from pre to post-intervention and these changes were maintained at one-month follow up. The overall between group effect sizes for all the study outcomes for the intervention group, when compared to the waitlist control group across time, ranged from large (overall self-compassion, self-kindness and over-identification) to moderate (mental wellbeing, personal burnout, work burnout, self-judgement, common humanity, isolation and mindfulness) to small (perceived stress and client-related burnout).

Although overall significant reductions were observed, there were some interesting minor anomalies on two of the main outcome variables, specifically perceived stress and work burnout. Although reductions were seen on these variables immediately after the programme, at one-month follow up the means had increased slightly. There are a number of suggested reasons as to why this may have been the case. Firstly, when administering an identical questionnaire, a number of times, there is the possibility of a negative response bias occurring so, on the third occasion of questionnaire completion, the participants in the intervention group may have responded less positively than they had done previously due to the repeated measure. Secondly, in the first week of April 2019 (when T3 was administered) there was well documented political uncertainty in the UK regarding the ongoing Brexit votes in the House of Commons that may have affected the participants. In fact, the waitlist control group showed a very slight yet similar trend in the same direction on the same variables at the same time point, which may strengthen this suggestion. Thirdly, other explanations may include the organisational climate at the time either in the NHS as a whole or in the Trusts the sample derived from. The impact of many years of austerity on the NHS, the challenging operating environment and the ever-changing landscape in the healthcare sector is rarely out of the attention of press outlets in the UK. Finally, the

time of year in which the one-month follow up occurred is towards the end of the peak winter period, where there is a notable increased demand for NHS services by the general population and this may have also had an impact on participants' responses to the perceived stress and work burnout questions.

ii. Outcome measures

a. Self-compassion effects

1. Pre to post intervention

When the within group effect sizes were considered for the intervention group immediately following their attendance on the programme, a significant increase in the participants' overall self-compassion was found ($p < .001$) with a large effect size ($d = .95$). The waitlist control group also undertook the self-compassion development intervention and their post-programme overall self-compassion results were equally significant with a large effect size ($d = .93$, $p < .001$).

When compared to the results of a recently published meta-analysis by Ferrari et al. (2019), which assessed the aggregate psychosocial outcome effect sizes from randomised controlled trials of novel self-compassion interventions, the present study shows promise in terms of overall self-compassion. The large effect size of overall self-compassion for the intervention group from pre to post-programme compares favourably to the large aggregate effect size ($g = .75$) reported from the included studies in the review.

The findings from the present study also compare favourably to previous online self-compassion development intervention studies with a working population (see Eriksson et al. (2018), $d = .86$, $p < .001$; Finlay-Jones et al. (2017), $d = .86$, $p < .001$) and a general sample (Krieger et al. (2018), $d = -1.21$, $p < .01$; Mak et al. (2018), $d = .32$, $p < .001$). Not only do the results compare favourably to other online interventions, but are also comparable to face to face interventions (such as Neff & Germer (2013), whose intervention delivery fell over eight weeks with two - two and a half hour

sessions each week and daily home practice of 40 minutes, $d=1.67$, $p<.01$). The present study indicates that a four-week, online and self-guided self-compassion development intervention with less than four hours of pre-recorded training webinars and limited home practice of one hour per week, can provide a comparable effect size on the overall self-compassion of participants derived from a working population.

2. Self-Compassion Scale subscales

So as to gain further clarity as a result of the self-compassion development intervention employed in the present study on the Self-Compassion Scale subscale effect sizes, of which mindfulness is a specific variable, these were included. Conceptually, Duarte and Pinto-Gouveia (2017) suggested an overlap between self-compassion and mindfulness and Birnie et al.'s (2010) argument that changes in mindfulness predicted changes in self-compassion, were supported by the review undertaken by Super, Yarker and Lewis (in preparation). Additionally, Baer, Lykins and Peters (2012) found that self-compassion was almost twice as strong a predictor of wellbeing than mindfulness, though both were significant. In a review conducted by Sinclair et al. (2017) looking at whether self-compassion can promote health care provider wellbeing, the majority of the included studies did not report on the SCS subscale scores, which the authors argued may create difficulty in determining which particular subscales are most affected by an intervention.

In terms of the within group effects of the self-compassion development intervention on the Self-Compassion Scale subscales, the results of the present study indicated that all the subscales were significantly improved from pre to post-programme for the intervention group. Self-kindness ($d=.93$, $p<.001$) increased with a large effect size. Similarly, self-judgement ($d=.84$, $p<.001$) and isolation ($d=.80$, $p<.001$) significantly reduced with large effect sizes for the intervention group. Common humanity ($d=.71$, $p<.001$) and mindfulness ($d=.64$, $p<.001$) significantly increased with medium effect sizes from pre to post-programme. Over-

identification ($d=.66$, $p<.001$) also significantly decreased with a medium effect size. The waitlist control also showed significant increases on all the Self-Compassion Scale subscales immediately following their participation in the intervention with a large effect size ($d=.85$) for self-kindness and medium effect sizes for the remaining variables, self-judgement ($d=.79$), common humanity ($d=.79$), isolation ($d=.63$), mindfulness ($d=.59$) and over-identification ($d=.75$).

The aggregate effect sizes reported for the subscales of the Self-Compassion Scale in Ferrari et al.'s (2019) meta-analysis from prior to and immediately after the included intervention studies are relatively comparable. A stronger effect size was shown in the intervention group in the present study on self-kindness, self-judgement, isolation and mindfulness than the aggregate effect sizes reported. The effect size for the common humanity variable was the same in both studies. On aggregate, only the effect size for over-identification, reported by Ferrari et al. (2019), was stronger than in the present study from pre to post programme.

Barnard and Curry (2011b) have suggested that MBSR interventions may only impact on the mindfulness scale of the SCS rather than having a more general influence of self-compassion, however, the results of the studies conducted by Bazarko et al. (2013), Duarte and Pinto-Gouveia (2016) and Raab et al. (2015) did not bear this suggestion out (Super, Yarker & Lewis, in preparation). In their blended learning intervention, Bazarko et al. (2013) reported a significant improvement in all the subscales of the Self-Compassion Scale from pre to post-intervention. When considering face to face delivery, interestingly, Raab et al. (2015) reported that mindfulness and self-kindness did not significantly increase. Duarte and Pinto-Gouveia (2016) only found significant improvements in common humanity, mindfulness, isolation and over-identification from pre to post programme.

It may be expected that the results of an MBSR-based programme with the sole intention of developing mindfulness and reducing participants' over-identification with thoughts and feelings would show a greater effect size in the mindfulness and over-identification variables than a study looking to impact on all aspects of self-compassion. However, when compared to the findings of the present study which also showed medium effect sizes in both mindfulness and over-identification for both groups of participants, there appears to be a strong similarity in the outcome measures. Interestingly, in Duarte and Pinto-Gouveia's (2016) study, the self-kindness and self-judgement variables were not significantly affected by the MBSR intervention but do show large effect sizes in the present study which may be anticipated when the intervention's explicit focus was on developing self-compassion, of which these elements form a core component of self-compassion as defined by Neff (2003b). Isolation showed a large effect size in the present study whilst Duarte and Pinto-Gouveia (2016) found a medium effect size immediately following their mindfulness-based intervention.

Hence indicating the programme utilised in this study positively impacted on all the Self-Compassion Scale subscales, including mindfulness. This may be unexpected for an intervention with the primary importance of developing self-compassion and a secondary focus on training in mindfulness practice (Neff & Germer, 2013). Furthermore, this significant impact was also found in the present study from baseline to one-month follow up on all the Self-Compassion Scale subscale variables with large effect sizes for self-kindness ($d=.91$), self-judgement ($d=1.05$), mindfulness ($d=.83$) and over-identification ($d=.85$) and medium effect sizes for common humanity ($d=.68$) and isolation ($d=.75$). In fact, the effect sizes from baseline to one-month follow up were larger in the intervention group for mindfulness and over-identification than were seen from pre to post-intervention. No directly comparative data was available for any follow up time points in the current literature, supporting Sinclair et al.'s (2017) suggestion that few studies include the Self-Compassion

Scale subscale information, and this does indeed present a challenge in terms of specific comparison with the impact on the present study's subscale outcome variables.

3. Self-compassion at follow up

When the within group effects for the outcome measures were considered for the intervention group from baseline to one-month following their attendance on the programme, a significant increase in the participants' overall self-compassion was found ($p < .001$) with a large effect size ($d = 1.01$). The follow up aggregate effect from Ferrari et al.'s (2019) meta-analysis was too small to be meaningful ($g = .19$) on overall self-compassion, although the scores were stable over time, whereas in the present study, the result on this outcome variable was found to show a large effect size, albeit only one-month post-programme.

The findings from the present study also compare favourably to previous online self-compassion development intervention studies in the general population (see Krieger et al., 2018; Mak et al., 2018) and a working sample (see Finlay-Jones et al., 2017). The programme utilised in the present study also compares favourably to self-compassion development at follow up from interventions delivered face to face (such as Neff & Germer, 2013; Pidgeon et al., 2014; Slatyer et al., 2017).

The results from the current randomised controlled trial suggest that the Self-Compassion at Work Programme effectively teaches healthcare professionals how to become more compassionate towards themselves. Furthermore, these results suggest initial evidence to support the premise that self-compassion can be significantly increased employing a brief online self-guided intervention and that these changes are maintained in the immediate follow up period.

b. Mental wellbeing effects

When the within group effects for the outcome measures were considered for the intervention group immediately following their attendance on the Self-Compassion at Work Programme, a significant increase in the participants' mental wellbeing was found ($p < .001$) with a moderate effect size ($d = .63$). Following the intervention, the waitlist control group reported a significant improvement in mental health with a small effect size ($d = .44$, $p < .05$).

These findings compare somewhat favourably to previous technology-enabled mindfulness-based intervention studies with a working sample (see Bostock et al. (2019), $d = .39$, $p < .05$) and a university student sample (see Simmons & Redman (2018)). When considering interventions employing face to face delivery to improve mental wellbeing in a working sample, the present study is somewhat comparable (see Beshai et al., 2016) and also in a student sample (see Roulston et al., 2018). Although, these studies reported a large effect size in mental wellbeing post-programme, the participants' level of engagement with the facilitator and home practice was significantly higher than in the present study.

In the present study, when the outcome measures were considered for the intervention group from baseline to one-month following their attendance on the programme, a significant increase in their mental wellbeing was found ($p < .001$) with a medium effect size ($d = .76$). Bostock et al. (2019) assessed mental wellbeing of the experimental group at eight-weeks after the programme and found no significant change on this outcome variable from post-intervention. The results from the present study suggest initial evidence to support the premise that self-reported mental wellbeing can be significantly increased employing a brief online self-guided intervention and that these changes are maintained in the immediate follow up period.

c. Perceived stress effects

When the within group effect sizes for the outcome measures were considered for the intervention group immediately following their attendance on the Self-Compassion at Work Programme, a significant decrease in the participants' perceived stress was found ($p < .001$) with a medium effect size ($d = .70$). Following the intervention for the waitlist control group, perceived stress significantly decreased from baseline with a medium effect size ($d = .51$, $p < .01$). On aggregate, the effect sizes of the stress outcomes reported by Ferrari et al. (2019) were equal to those found in the present study from pre to post-intervention. However, it is worth noting that two measures (PSS and DASS-S: Depression, Anxiety and Stress Scale – Stress subscale; Lovibond & Lovibond, 1995) were used to report the stress outcome variables in the five included studies assessing stress.

The findings of the present study compare somewhat favourably to similar previous self-compassion development online intervention studies with a working population (see Eriksson et al. (2018), $d = .59$, $p < .001$; Finlay-Jones et al. (2017), $d = .85$, $p < .001$) and with a blended learning intervention based on MBSR (see Bazarko et al., 2013) from pre to post-programme. When considering mindfulness-based interventions delivered face to face with a working population, the results of the present study compare favourably (see Marx et al., 2014; Shapiro et al., 2005). In a general population, Neff and Germer (2013) found a significant difference in perceived stress ($d = .37$, $p < .05$) between the intervention and waitlist control immediately following the face to face self-compassion focused intervention.

In the present study, when the outcome measures were considered for the intervention group from baseline to one-month following their attendance on the programme, a significant reduction in their perceived stress was found ($p < .05$) with a small effect size ($d = .45$). This finding is relatively comparable to a previous online self-compassion development

intervention study with a working population (see Finlay-Jones et al. (2017), $d=.46$, $p<.007$, from pre-test to three-month follow up). The present study also compares favourably with interventions delivered face to face in a general population, Neff and Germer (2013) reported no significant improvements at six-months and one-year follow up in perceived stress. In working samples, Bazarko et al. (2013) reported no significant improvement in perceived stress from post intervention to four-month follow up, however, Marx et al. (2014) found a significant reduction in perceived stress from baseline to three-month follow up from employing a mindfulness-based intervention. The results from the present study suggest initial evidence to support the premise that self-reported perceived stress can be significantly reduced employing a brief online self-guided intervention and that changes are maintained in the immediate follow up period.

d. Burnout effects

When the within group outcome measures were considered for the intervention group immediately following their attendance on the Self-Compassion at Work Programme, a significant reduction in the participants' personal burnout ($d=.42$, $p<.05$) and work burnout ($d=.42$, $p<.05$) were found, both showing a small effect size. Client-related burnout was not significantly reduced ($p=.349$) and showed no effect size ($d=.17$) from pre to post-programme for the intervention group in the present study. The waitlist control group showed no significant differences in the three burnout variables, personal burnout ($p=.077$), work burnout ($p=.194$) and client-related burnout ($p=.549$), as operationalised by the CBI. Reasonably comparable results are reported in previous mindfulness-based intervention studies with working samples delivered in a blended-learning manner (see Bazarko et al., 2013) and when delivered face to face (see Brooker et al., 2014; Ireland et al., 2017; Scarlet et al., 2017).

In the present study, when the within group outcome measures were considered for the intervention group from baseline to one-month following their attendance on the programme, a significant reduction in their personal burnout ($d=.55$, $p<.01$) showing that the effect size had increased to medium from pre-programme to the third time point. However, both work burnout ($p=.055$) and client-related burnout ($p=.093$) were not significantly reduced from baseline to one-month follow up in the present study. When considering the mean scores for these variables, although work burnout decreased from pre to post-programme for the intervention group, it had increased slightly at one-month follow up. Whereas the mean scores for client-related burnout approached a significant linear trend, as the means did continue to decrease over time. Considering previous intervention studies at follow up, Bazarko et al. (2013) reported a significant difference solely in work burnout. Scarlet et al. (2017) suggested the lack of effect from the programme on the burnout scores may have been due to the samples' apparent floor effect, due to low levels of burnout in the healthcare workers prior to the intervention taking place.

It is possible that the intervention employed in the present study does not have an impact on client-related burnout as operationalised by the CBI. In fact, when considering previous compassion or mindfulness-based intervention studies that have also employed the CBI measure, no significant effect on burnout is prevalent (i.e. Brooker et al., 2014; Ireland et al., 2017; Scarlet et al., 2017). Future studies may consider employing alternative measures of burnout that have been utilised in similar intervention studies such as the MBI (Maslach Burnout Inventory: Maslach & Jackson; 1981), although both Raab et al. (2015) and Shapiro et al. (2005) found no significant differences in burnout following an MBSR intervention. However, burnout can be assessed as a subscale on the Professional Quality of Life Scale (ProQOL5; Stamm, 2010) and has been utilised in previous intervention studies to detect changes in burnout following mindfulness-based interventions. In controlled trials, both

Duarte and Pinto-Gouveia, (2016) and Slatyer et al. (2017) found large ($d=.97$, $p<.002$) and small ($d=.38$, $p<.001$) effect sizes respectively in nursing samples when employing the stress subscale on the ProQOL5.

The concept of burnout can be understood as prolonged job stress (Maslach & Schaufeli, 2017). As the participants in the included studies in a recent meta-analysis were volunteers, rather than having been diagnosed with burnout syndrome, a consequence may be the limited effect sizes seen from pre to post-intervention (Iancu et al., 2017). In fact, Maricutoiu et al. (2014) in their meta-analysis showed a small overall effect size ($d=.22$, $p<.05$) on the general level of burnout. There is also a question over the focus of interventions to tackle burnout in the literature specifically in relation to the length of the intervention itself and whether individually focused interventions are likely to be effective. Iancu et al. (2017) suggested that interventions lasting less than a month had the smallest level of efficacy and post-intervention effects at one-month follow up are almost null.

Panagioti et al. (2017) in their meta-analysis suggest that burnout is an issue for the entire healthcare organisation, as opposed to individuals within it. Furthermore, as burnout is inherent in the organisational coherence of the healthcare system, it appears that only intervening at the individual level will be ineffective and an organisationally embedded approach may be required. Ahola et al.'s (2017) meta-analysis supports this view and suggests that individually focused interventions are not reliably adequate to tackle severe burnout. Specific to physician burnout, West et al. (2018) posit that this is best addressed when both healthcare systems and individual physicians are equally accountable and engaged in tackling the effects of burnout. It may be that interventions designed directly to target burnout and improve patient care simultaneously could increase their efficacy (Johnson et al., 2018). As the intervention in the present study did not specifically aim to reduce burnout and was limited in terms of duration and the length of the follow up period, these aspects could have combined to limit some of the effect sizes seen, from pre to

post-programme and at one-month follow up, in regard to the burnout variables.

However, the results from the current study do suggest initial evidence to support the premise that self-reported personal and work burnout can be significantly reduced immediately after the completion of a brief online self-guided intervention and, for personal burnout, these changes are maintained at one-month follow up. However, self-reported client-related burnout was not significantly affected by the Self-Compassion at Work Programme. This finding may have also been affected by the baseline measure of client-related burnout in the present sample which was fairly high ($M=34.41$), compared with Bazarko et al.'s (2013) pre-intervention measure in a USA based nursing sample ($M=19.49$). This raises the possibility that to significantly reduce client-related burnout, employing a stand-alone individually based programme in the present-day UK-based NHS, may not be as effective due to ongoing issues with understaffing, decreased financial stability and increased need for services.

iii. Mode of delivery effects

The results of the present study showed that a brief online intervention to develop self-compassion in healthcare professionals can be equally effective regardless the slight differences between the delivery modes employed. There were no significant differences detected between the intervention group (high intensity) and the waitlist control group (low intensity) in either the main study variables or the Self-Compassion Scale subscales.

Although, in terms of overall self-compassion and outcomes of self-kindness, perceived stress, common humanity, mindfulness and over-identification, there was no difference in the effect sizes seen between the two groups, a difference in effect was shown for some variables. The high intensity delivery method had a stronger effect on self-judgement, isolation, mental wellbeing and burnout than the low intensity delivery method. Although further research is needed, it may be that it is more

effective to run the Self-Compassion at Work Programme in stages, over a four-week period. However, as the low intensity delivery mode was still shown to be effective in the present study, there may be an organisational driver to balance the strength of the results with the convenience and flexibility afforded as well as the time and cost savings as suggested by Krieger et al. (2016).

Post-programme evaluation findings

Post-programme evaluations indicated that participants found the intervention overwhelmingly positive and acknowledged the beneficial impact on both their work and personal lives; however, some adaptations to the programme were suggested to increase the delivery timescale and improve access to selected content to increase flexibility of engagement. Overall, the healthcare professional participants in the present study reported finding the Self-Compassion at Work Programme both accessible and feasible.

Discussion Summary

It appears that for a busy working population, previous recommendations made by Bazarko et al. (2013), Duarte and Pinto-Gouveia (2016), and Shapiro et al. (2005) which suggested that self-compassion development programmes that require less in-person time for participants and are of a shorter duration (so as to reduce the time commitment and strain for staff) and which can be more easily fitted into their working schedules, should be considered. The present study supports this premise and shows that the effect size of a brief online intervention can be large in regard to overall self-compassion and that self-compassion can be significantly increased by engaging with a less time-intensive programme designed for a working population. This would suggest that developing self-compassion online with no interaction with other study participants and, in a briefer time period than seen with traditional formats, may provide similar benefits.

The extent to which online training can offer distinct advantages over a face to face format for busy healthcare professionals is suggested by the findings of the present study. Online training programmes have been seen to provide accessible interventions, which save time and travel for participants and provide protection in terms of confidentiality as well as keeping costs low (Krieger et al., 2016). Participants may also feel more comfortable taking part in training programmes conducted in their own environments (Krusche, Cyhlarova & Williams, 2013). Further studies that offer a direct comparison between online and face to face formats are required to confirm the benefits of self-compassion focused online interventions. This will build on the knowledge accumulating within the mindfulness field where a study by Wolever et al. (2012) showed no differences between the outcomes following an MBSR programme regardless of face to face participation or online engagement.

Although there may be concerns regarding individuals who could derive benefit from direct contact with an appropriately qualified professional and may go untreated as a result of attending an online intervention, studies from the field are showing promising results (i.e. Finlay-Jones et al., 2017; Eriksson et al., 2018). In fact, online interventions may offer opportunities for individuals who would not be able to access a face to face programme due to physical constraints and/or availability at set times and for those concerned about stigma, or confidentiality in a work setting, who may be incentivised to take part. The present study indicated that the initial level of interest, from staff based in the five NHS organisations who provided a sample, was high (n=424). Thus, suggesting that when a brief online intervention to develop self-compassion in the workplace is offered to staff free of charge, there is an encouraging degree of interest expressed in taking part.

Strengths of present study

Overall, the current study has a number of strengths. The study employed a randomised controlled trial design, with a large group of healthcare professionals, which provided a robust design and allowed direct comparisons between the intervention and waitlist control groups on the outcome variables across time. The statistical analyses utilised also allowed specific gains between various timepoints to be considered in terms of impact on the twelve outcome measures included.

Employing the quantitative study checklist provided by Snape et al. (2017), the present study fulfilled many of the suggested requirements in terms of quality assessment. Efforts to address these quality markers include: thorough presentation and description of the intervention's effectiveness; employment of a recognised robust design (RCT with waitlist control); appropriate, independent, valid and reliable measures with a work-based sample were utilised and the intervention and waitlist control groups were randomly assigned; the study was representative of a healthcare professional sample, which showed baseline equivalence on demographic data; the sample size was deemed large enough to sufficiently test for the desired impact and over 35% of the participants completed pre and post measures with differences between the dropouts and completers statistically reported; attrition was defined overall and between comparison groups; equivalence was shown in blind assignment and group treatment; steps were taken to analyse the results and treat missing data following established recommendations; evidence was presented in relation to the research questions with explicit reporting of the findings and appropriate discussion; the highest standard of ethical consideration was provided to fully informed participants and reported throughout the study; suggestions regarding the consequences of the research were made in regard to peer and family support and the development of communities of practice following the intervention to participants; throughout the research study, participants anonymity was assured and fully protected.

In using Snape et al.'s (2017) framework as a guide for design and reporting, we propose that the present study makes a strong contribution to the existing knowledge of an approach that supports wellbeing in the workplace. In applying these criteria to the current study, it rates highly in terms of quality assurance. See Supplementary Table 1 for a summary of the Quality Assessment checklist provided for the present study.

The online intervention designed and delivered by the author provides supportive evidence for the assistance that can be provided to time-poor staff when employing a brief and accessible intervention to improve their self-compassion in the workplace, as well as offering additional psychosocial benefits. Interventions, such as the one described and tested in this study, offer a cost-effective and easy to administer format which can target individuals globally, with no direct contact with a mental health professional or waiting lists to negotiate. For a busy working population, less in person time, no facilitator requirement and lower costs can enable such interventions to reach much higher volumes of staff, so that more individuals may derive the health and wellbeing benefits afforded.

Limitations

i. Design

a. Study attrition

Of the 424 healthcare professionals who showed initial interest in taking part in the study, only 230 completed eligibility screening and informed consent. There are a number of reasons why 194 staff members may have chosen not to proceed and a further 76 dropped out during the study period. The study was due to take place during the peak winter period for NHS organisations, with winter 2018/19 proving to be one of the worst periods in the NHS's history, with huge pressure on doctors and hospitals reported (British Medical Association, 2019) despite January and February 2019 being the warmest for five years. Another possible reason why staff could not proceed may have been that the eligibility screening asked that the healthcare professionals worked a minimum of thirty hours

each week, had access to the internet, provided a personal email and committed to two hours of programme engagement per week for four weeks. These criteria may have excluded potential participants who have additional caring responsibilities outside work, do not have a home computer or work part time. Recent research has suggested that reduced working hour arrangements, of less than 30 hours per week, are associated with lower allostatic load or chronic stress (Chandola et al., 2019). Thus, mandating the need to exceed this number of working hours, may have enabled staff with greater stress levels to receive the intervention.

Despite high dropout rates being a normal and anticipated aspect of online interventions to support psychological wellbeing, the attrition rate in the present study was not unusual (Eysenbach, 2005). This may have been partly as a result of the author's consideration and enactment of various guidelines suggested by Dziura et al. (2013) to retain participants during an intervention study. In terms of dropout rates, 55% of intervention group participants completed the post-test questionnaire which is in line with previous online interventions that have looked to develop self-compassion in the workplace (e.g. 44% remained at post-test in Halamova et al. (2018) and 54% remained at post-test in Finlay-Jones et al. (2017)). Furthermore, 49% of the intervention group completed the one-month follow up measures, which is also comparable to a similar previous study which employed a follow up time point (e.g. 40% remained at a three-month follow up in Finlay-Jones et al. (2017)). The 76 dropouts from the present study actually reported higher levels of perceived stress and personal burnout than those who remained throughout, suggesting that the healthcare professionals who may be most in need of such an intervention are not receiving the appropriate support, which is an issue requiring consideration by the NHS and national policy makers.

b. Sample

The sample was drawn from a variety of NHS organisations who provide healthcare in acute, community and mental health care settings. These organisations provided a large number of healthcare professionals in terms of initial interest in the study. It may have been beneficial for higher numbers of staff to have been recruited into each condition, and for all phases of data collection, to increase the generalisability of the findings. However, in the present study the randomised sample sizes were indeed sufficient to conduct the most robust statistical analysis.

As participants self-selected to take part in the study this may have acted as an incentive which could have affected the resultant outcome measure increases seen and introduced inherent bias. Furthermore, as the participants chose to engage with the research, they may have been more committed in principle to developing self-compassion in the workplace and willing to share their positive experience of the intervention, hence completing the required number of questionnaires in full. As this was a volunteer sample, the participants' motivation to undertake the intervention may have been higher than in the general healthcare professional population, and therefore may not be entirely representative. Despite these potential issues, recruiting a sample in this manner is reflective of a widely tested approach in intervention studies and is a time and cost-effective strategy.

The sample displayed relative heterogeneity in terms of their healthcare professional role, and it may have been useful to compare two groups from different occupations within the public sector, such as police officers, so as to be able to consider the efficacy of the intervention in different working populations. Furthermore, the present study did not consider interdisciplinary differences in the sample, which could have provided insights into the impact of the intervention on various roles within a healthcare professional population. However, recruiting a specific sample

of healthcare professionals enabled a degree of comparison with other previous studies to take place employing a similar group of subjects.

Although at the current time, there is no evidence to support the efficacy of self-compassion development interventions being dependent on gender (Eriksson et al., 2018), there was a lack of demographical diversity in relation to gender in the present study, with the majority of the participants being female. However, this is representative of the lack of gender diversity in the NHS as a whole, with 77% of staff employed being female (NHS Employers, 2019). There is evidence to suggest that self-compassion in women is significantly slightly lower than in men (Neff, 2011; Neff & Knox, 2017), supported by a meta-analysis by Yarnell et al. (2015) who found a small effect size. Furthermore, a higher number of female subjects are likely to volunteer for online intervention studies (Krieger et al., 2018). Hence, the fact that 90% of the present sample were female may have provided those who would be expected to have slightly lower self-compassion to gain benefit from the intervention. Therefore, an over-representation of female subjects, attracted by the study, may have delivered a positive consequence for the sample.

c. Active control

The present study lacked an active control condition to allow stronger management of expectancy (placebo) effects, which could indicate that increases may be due to a general treatment effect. There has been a growing recognition that active control conditions may provide a more conservative comparison with a decreased risk of type-I error (Borenstein et al., 2009) than conditions employing a waitlist control. Kirby et al. (2017) suggested that active controls may result in improvements in and of themselves and therefore hypothesised that this may produce a smaller effect size than when compared to a waitlist control (e.g. Khoury et al., 2013). Although it has been argued that trials with a waitlist control may overestimate the effects of the treatment condition (Cunningham et al., 2013) this can vary depending on study populations. Alongside this,

researchers may fail to recognise the absolute effects of a waitlist control compared to the relative effects of an active control when considering the differences to a treatment condition (Karlsson & Bergmark, 2015). In their meta-analysis, Ferrari et al. (2019) found that aggregate effects for self-compassion and mindfulness were significant, yet smaller, in studies with active control groups compared to those with waitlist controls. However, the present study, engaged in an emergent area of research and considering a novel intervention not previously tested, considered a waitlist control condition enabled robust comparisons to be drawn between the groups. Future studies may look to include an active control group alongside a treatment group and a waitlist control group to enable clear differentiation of the effects on the outcome measures.

d. Insider researcher bias

While due care and attention was taken to ensure that data was handled in an objective manner, the present study was not blind to the researcher. As the researcher was involved in the design and delivery of the intervention and design and execution of the evaluation, insider research bias may be considered a limitation of the present study. Although blind protocols can be considered by researchers, they are not commonly used in the life sciences (Holman et al., 2015). Furthermore, in seeking the advice of three researchers, who were unaware of the identity of the subjects and treatment groups throughout all aspects of the undertaking of this study, this may have mitigated the potential bias somewhat.

e. Measures

The present study drew from well validated and reliable measures as determined by their development and internal consistency. The study also employed the use of a recommended software programme to collect the data with less exposure to human error (Boateng et al., 2018). Unfortunately, there was a lack of similar previous study comparison data for mental wellbeing using the WEMWBS and burnout employing the CBI.

Neither of these measures have previously been used in a published online self-compassion development intervention study and therefore this limited the ability to consider the findings of the present study regarding these two variables. However, mindfulness-based online interventions and face to face programmes were identified and used for comparative purposes. This enabled relevant similarities and differences between higher 'in person' time interventions and the Self-Compassion at Work Programme to be reported.

The present study displayed an over reliance on self-report measures which may skew the findings due to social desirability responding and the samples' degree of introspective ability (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016). There is also the possibility that recall bias and selective recall may have affected the participants' responses, but self-report measures allow the opportunity for subjects to give their opinions, perspectives and views (Althubaiti, 2016). The number of self-report measures employed may have contributed to the attrition seen across the study and, the multiple testing employed, may have increased the risk of errors in inference, particularly Type I errors.

It may have also been beneficial to consider the inclusion of biological measures as, in terms of stress outcomes specifically, recent research by Kirschner et al. (2019) has shown a psychophysiological response pattern of reduced arousal (decreased heart rate and skin conductance) and increased parasympathetic activation (higher heart rate variability) following brief self-compassion development interventions. This pattern is identified in effective emotion regulation at times of difficulty and suggests that the inclusion of independent physiological measures and biological indicators of stress are warranted in future research although this would pose additional challenges to researchers and increase the burden on participants.

Independent assessments relating to the impact of the intervention on subjects' work performance and caring responsibilities as well as

considering organisational data sources such as sickness/absence and turnover would have provided an opportunity to triangulate the self-report measures in this study more comprehensively (Bazarko et al., 2013; Duarte & Pinto-Gouveia, 2016; Scarlet et al., 2017; Shapiro et al., 2005).

As it has been argued that having compassion for others relies on having self-compassion and may increase the effectiveness of clinical care (Raab, 2014), it could have been useful to include a measure of compassion for others in the present study. Furthermore, to understand this in real terms, patients, colleagues and managers could have also provided feedback on the subjects' levels of compassion exhibited in the workplace, towards others, both before and after the intervention. For a field study, this may have been more time consuming and complex as well as challenging in terms of ethical support. The present study specifically asked the healthcare professionals how they had applied the teachings from the intervention to their daily lives, and the responses were overwhelmingly positive in this regard, particularly in reference to a work context.

f. Follow up period

The present study selected a limited follow up period of one-month post intervention which therefore did not allow for Hawthorne effect of three months to be mitigated for. Furthermore, it could be argued that the follow up period in the current study was too short to claim that the findings were maintained across time and, although this may be considered a design limitation, there are previous mindfulness-based intervention studies that have also employed the same follow up period successfully (e.g. Ivtzan et al., 2016; Krusche et al., 2013). Additionally, it has been suggested that healthcare professional samples have higher than normal attrition rates (Scarlet et al., 2017), therefore providing support for the one-month follow up period instigated in the present study, due to the inherent time constraints when conducting research in the field.

g. Mediation analysis

The present study did not conduct mediation analysis so is unable to state the mechanism by which self-compassion alters the psychosocial outcomes seen. There is a developing understanding in the literature as to how increases in self-compassion following mindfulness-based interventions have brought about observed changes in other outcome variables (e.g. Querstret et al., 2017). Also, there is promising evidence to suggest that emotion regulation may represent a key mechanism supporting the relationship between self-compassion and psychological wellbeing (Allen & Leary, 2010; Arch et al., 2014; Finlay-Jones et al., 2015; Neff et al., 2005).

A number of similar peer-reviewed intervention studies which employed a randomised controlled trial design, have solely reported the effect sizes obtained on their dependent variables (e.g. Eriksson et al., 2018; Halamova et al., 2018; Trompetter et al., 2015) therefore this study mirrors this established approach. Further research could usefully examine the mechanisms underpinning the relationships reported in the present study.

h. Ethical considerations

Whilst due care and attention was given to The Code of Human Research Ethics (British Psychological Society, 2014) the study did not, as such, screen subjects for any prevailing mental health issues. A number of recent online self-compassion development intervention studies equally did not employ a mental health assessment prior to participants from a non-clinical sample taking part (e.g. Eriksson et al., 2018; Finlay-Jones et al., 2017; Halamova et al., 2018). Therefore, as the subjects were drawn from a working well population, the present study reflects this precedent. However, it was made clear to the subjects that if they had any questions, they could make direct contact with the researcher and had a mental health issue been raised, a suggestion to contact their General Practitioner would have been provided.

ii. Procedure

a. Programme recruitment

The sample recruitment flyer provided to the NHS organisations for the present study may have biased the participants towards meeting the positive outcomes the intervention was attempting to produce. It suggested that self-compassion may assist healthcare professionals to stay healthy and well at work and that the research shows that people who are self-compassionate are happier, less stressed and more resilient. These suggestions could have influenced the assessments of outcome variables based on research demands and participants wanting to meet study expectations (Halamova et al., 2018). However, it did attract a large initial response and clearly represented positive possibilities as a result of attending a self-compassion development programme to a healthcare professional sample.

b. Additional home practice effects

Although the intervention was clearly prescribed in terms of engagement with the programme materials, including the amount of time required for each aspect (webinars, daily diary and key tasks), a possible oversight in the post-programme evaluation was the failure to assess the regularity or duration of any additional home practice undertaken by the participants. Data regarding the amount of time participants practiced, over and above the suggested two hours per week across the four-week programme, was not collected. This raises the possibility that the effect sizes seen in the present study could be due to motivation in the intervention group to practice for long additional periods. This may have been useful to understand so that the optimal level of home practice for the intervention's success was known with greater clarity. However, at no point in the post-programme evaluation feedback did any participant indicate that they had practised above and beyond expectations or guidelines in their free text comments. Therefore, this may have not actually influenced the findings in the present study.

c. Programme engagement

The author logged the level of engagement with the webinars by the participants in the intervention group throughout the four-week intervention period. The platform the webinars are accessed from only allowed log in details (name, date and time) to be recorded.

Unfortunately, the platform does not provide details of the duration of webinar engagement. Employing platforms that allow this information relating to exact adherence would be beneficial in terms of programme development and future research (Finlay-Jones et al., 2017). However, reminders were emailed to the intervention participants if they had not logged in to the webinars by week three of the programme and advised them that they may benefit from listening/watching at least two of the webinars in terms of self-compassion development. This may have encouraged and supported programme engagement for participants who were falling behind.

d. Organisational support

Although the five healthcare organisations offered staff a CPD credit for completion of the study, it is unclear if any of the NHS Trusts gave time off in lieu or protected time for participants to undertake the Self-Compassion at Work Programme. This was despite the author making this suggestion during the initial recruitment phase to the respective organisational representatives. This possible limited organisational support may have contributed towards the attrition rate. It is clearly key for an intervention looking to improve individuals' working lives to be actively supported by an employing organisation, in terms of both managerial encouragement and time provision. This recognition would have provided formal support and acknowledgement of the professional development benefits offered to staff through their participation in the intervention. The CPD credit was proposed by the author as a minimal form of recognition and was taken up by the organisations involved.

Implications for theory and practice

i. Suggestions for future research

Replication studies with other healthcare professional samples are required to corroborate the findings of the present study. When reflecting on the results of the study overall, it is of interest to note that all the participants who completed to one-month post-programme were significantly different at baseline in regard to age, perceived stress and personal burnout to those who dropped out of the study throughout this same period. Thus, suggesting that participants who reported greater levels of stress and personal burnout did not manage to remain in the study and undertake the self-compassion development programme. This may have been due to the additional demands of the programme posing a challenge to those who were experiencing a higher degree of stress and burnout. Conducting follow up assessments with staff who drop out would be beneficial to further understand their reasons for doing so. This finding provides an insight into the NHS staff members, who volunteered to undertake the programme and remained throughout, as they may have represented the 'worried well', rather than the healthcare professionals who might have been more in need of an intervention to reduce stress and personal burnout levels. Future research may consider screening for stress and burnout at the recruitment stage to ensure the intervention targets those who most need the support.

Future studies employing a healthcare professional sample from the NHS may consider avoiding peak winter periods to allow for the likelihood that many staff will be working above and beyond their normal working hours during this time (British Medical Association, 2018), although these pressures are increasingly seen all year round. Additional workloads may present a barrier to engagement with development interventions along with other organisational activity that may be taking place during busy phases in the healthcare sector. Extending the study to include more NHS

organisations would enhance the possibility of being able to recruit a larger sample and could offset the risks of study and programme attrition.

Collecting additional demographic information from subjects such as professional role, years in role and hours worked per week would be beneficial and allow for interdisciplinary and time spent at work comparisons to be drawn between groups. Additionally, ethnicity data may enable a greater understanding of the sample to ensure that any intervention is equally effective across diverse populations. To counteract the effects of gender bias seen in the present study, recruitment advertising could consider methods that may appeal directly to male participants to encourage greater take up and sample diversity. Furthermore, to engage higher numbers of male participants, self-compassion development interventions could be mandated as in job requirements for line managers. Home practice effects could also be measured, and the data could be considered comparatively to understand if extended practice of the programme enhances the effect sizes seen in the present study. Software platforms that allow exact adherence to the programme could be used in future research to enable levels of engagement to be compared.

Health related behaviours may be useful to understand prior to and following an intervention such as sleep quality, levels of physical activity, eating behaviours and alcohol consumption to assess whether the intervention has any impact on such variables. Research would benefit from understanding the impact of the intervention on a range of outcome variables, including objective physiological indicators, organisational measures such as sickness/absence rates and performance ratings from managers as well as compassionate care received as reported by patients. Experimental groups could include a waitlist control and online self-compassion development intervention but be extended further to include a self-compassion development intervention delivered face to face and an active control who could undertake a brief writing exercise to develop self-compassion for example. This would allow for greater clarity and

further analysis of the outcome measures between the various conditions to be drawn. An extended follow up period would be recommended to be able to spread findings across a longer time period. In fact, assessing the impact of a self-compassion development intervention longitudinally may allow the possibility of testing outcomes over several years or even the course of a career.

Theoretically, it is important to recognise that the mechanisms of emotional labour utilise emotion regulation as a guiding construct (Grandey, 2000), to understand how to improve wellbeing particularly in the helping professions. In the systematic review conducted by Super, Yarker and Lewis (in preparation), a key theoretical underpinning for many of the included intervention studies was also based on adaptive emotion regulation, as a means of managing emotion when confronted with stressful events, thus reducing their impact. The model presented by Gentry and Baranowsky (1998) considers interventions that target adaptive emotion regulation and thought patterns in response to stressors, as well as encouraging alternative ways of responding to work, may be a key feature in developing resilience and decreasing compassion fatigue (Rees et al., 2018). Pertinently, Arch et al. (2014) proposed that self-compassion training moderates stress responses by enhancing emotion regulation.

It has been argued by Reizer (2019) that self-compassion does not look to dismiss or suppress challenging emotions but offers a soothing and caring response to difficulties (Neff & Knox, 2017). Self-compassion may therefore offer an alternative approach to emotional regulation, as emotions are encouraged to be present and accepted, which may increase psychological strength (Germer & Neff, 2015) in the face of challenges in the workplace.

For nurses, Kinman and Leggetter (2016) suggest that the need to establish self-care capacity and effective emotion regulation approaches are important to enable the renewal of the necessary emotional resources

required for the role. Therefore, self-compassion development interventions, such as the one utilised in the present study, may be considered to target roles which include high levels of emotional labour in “person-related work” (Zapf, 2002), such as in the police, fire and prison services as well as probation officers, social workers and customer service representatives. It is well documented that such roles can lead to job dissatisfaction and result in burnout (Grandey, 2000), thus further research could explore if self-compassion development may be beneficial to build the emotional capacity of staff in roles traditionally associated with high levels of emotional demand.

Finlay-Jones et al. (2015) posit that self-compassion negatively predicts stress and present preliminary findings to support the suggestion that emotional regulation difficulties mediate the connection between self-compassion and stress among psychologists. Overall, more research is required to fully test the relationship between various aspects of emotional regulation and self-compassion (Finlay-Jones, 2017) and future studies may wish to consider whether emotion regulation mediates the changes in outcomes over the course of a self-compassion development intervention (Finlay-Jones et al., 2017). Following this, suggestions for future research may consider conducting mediation analysis to consider the mechanisms of change in the main study variables so as to understand more fully how the Self-Compassion at Work Programme worked to increase self-compassion and mental wellbeing and decrease perceived stress and burnout in a healthcare professional sample. To summarise, a number of features could be incorporated into future research to further support the veracity of the Self-Compassion at Work Programme in a variety of sectors and with a range of working populations.

ii. ***Suggestions for future practice***

The programme utilised in this study included teaching a ‘Loving Kindness Meditation’ (LKM), which was incorporated into the third week of the

intervention as part of the introduction to common humanity, a core component of self-compassion as defined by Neff (2003b). LKM has been demonstrated to increase positive affect and mood (Fredrickson et al., 2008) and is used to increase benevolence towards self and others. This furthers Fredrickson's (1998) broaden and build theory which posits when an individual is exposed to positive emotions, even briefly, their ability to broaden their outlook and develop psychological resources is increased, which may also lead to better stress management. This may be especially helpful in the workplace as Fredrickson et al.'s (2008) LKM intervention study showed where the findings revealed an increase in a range of positive emotions and resilience, as well as self-acceptance and mindfulness compared to a control group. Furthermore, these improvements were maintained at 15-month follow up regardless of whether the participants continued the LKM practice (Cohn & Fredrickson, 2010).

Combining LKM with other intervention strategies appears to show promise (Hofmann et al., 2011), as has been the case in the present study. Additionally, Boellinghaus et al. (2014) supported this premise in their review of LKM interventions with non-clinical samples, by suggesting that self-compassion and compassion for others can be increased via this specific element and related practices. It appears that cultivating the mindset advocated by LKM towards ourselves and others, could readily translate into greater self-compassion (Neff & Dahm, 2015). It may therefore be of interest to practitioners to include LKM in an explicit self-compassion development intervention, alongside the three core components of self-compassion as defined by Neff (2003b), based on the findings of the present study.

In June 2019, the independent regulator of health and social care in England published the results of their adult inpatient survey which revealed a downward trend in satisfaction for the majority of the measures assessed, representing the impact of the continued pressure on the healthcare system (Care Quality Commission, 2019). Against this

backdrop, in the most recent NHS Staff Survey, 40% of respondents reported that they had felt unwell as a result of work-related stress in the last 12 months, which was the worst result on this measure in the previous five years (NHS England, 2019). Hodgson et al. (2018) suggested that employee sickness and absence in the NHS is most frequently caused by a single factor, stress. Staff morale is clearly low, with a recent qualitative study which reported on the impact of many years of austerity on NHS staff in accident and emergency departments, who reported feeling increasingly devalued (Kerasidou & Kingori, 2019). The scale of the workforce challenges in the NHS appear unprecedented and present a threat to the quality and delivery of care for the next decade (The Health Foundation et al., 2018). The current landscape is of grave concern but requires systemic and national policy interventions, neither of which fall within the remit of this study.

Given their relative cost efficiency, and the ability to roll-out at scale, online self-compassion interventions may be an effective component of any large organisations strategy to support employees' health and wellbeing. Self-compassion development, as provided in the Self-Compassion at Work Programme, actively encourages and empowers staff to self-care. NHS Employers (2019) consider creating a healthy working environment and encouraging staff to take personal responsibility for their health as one of the eight key elements of workplace wellbeing. This definitively encourages organisations to support their employees to care for themselves and to specifically have self-compassion, recognising that the busy working environment they offer care within may not naturally provide the opportunity to self-care. Additionally, organisations are instructed to create a culture that supports wellbeing whilst enabling staff to recognise the need for self-compassion and take responsibility for their health. This advice goes further in suggesting NHS organisations provide staff with health interventions that offer a targeted approach to stress, as well as prevention and self-management, whilst ensuring interventions are accessible for all staff. It could be suggested that the Self-Compassion

at Work Programme fulfils these requirements based on the evidence presented in the present study.

Recent research into employee wellness programmes has suggested that many of the staff who are most in need of interventions to support their health and wellbeing do not tend to volunteer for such initiatives in the workplace (Jones, Molitor & Reif, 2018). Possible reasons for this posited by the authors are their other commitments and dependents as well as a perception that such an intervention is not for them, therefore assistance is required to overcome such obstacles. This may include informing potential participants as to the benefits of self-compassion to increase take up prior to programme implementation (Bazarko et al., 2013). It may also be advantageous for practitioners to consider how to attract and retain the participants who may benefit from such an intervention the most. This issue may be addressed in the workplace by offering health and wellbeing development initiatives to those who may be in need including staff engaged with occupational health services or on return to work following sick leave. It could also entail an open referral system that individuals within the organisation can access directly as well as managers to suggest and encourage staff to attend who may benefit. This may increase the chance of the intervention's effects enduring in the workplace (Marx et al., 2014).

Practitioners need to actively encourage potential participants to remain in the programme and remove any barriers they may face. One suggestion may be for organisations to provide the time and space for healthcare professionals to engage with health and wellbeing initiatives as part of their working day, provide time off in lieu or study leave. Learning and development practitioners could consider how to incorporate self-compassion development programmes into mandatory induction training and management and leadership development initiatives. Furthermore, there is an argument to suggest that self-compassion development programmes could be embedded in professional training for healthcare

professionals at the start of their career so that this skill is made available to them and can be built upon throughout their clinical practice.

In all sectors, covering a variety of working populations, practitioners could enable traction for interventions that augment technology by indicating actual cost-savings to organisations through comparison of online programmes with face to face development interventions.

Practitioners may be encouraged to contribute to the evidence base pertaining to online self-compassion development to help elucidate the value and impact such interventions may provide. As part of this evaluation, building in an economic analysis to show the cost benefit of developing self-compassion in the workplace and the effect this may have on employees' health, wellbeing and productivity, as well as the potential retention of key staff, could be of benefit. If practitioners were able to gain buy in from organisations to integrate self-compassion development into a rolling programme for all staff members, further research may explore if this may enhance a wider culture of compassion when championed organisationally and by the most senior staff. To embed compassion into all working practices, procedures and policies and in the conduct of organisational life, the impact could significantly enhance an organisation's capacity to work with full human effectiveness (Worline & Dutton, 2017).

CONCLUSION

The current study set out to evaluate a brief online self-compassion development intervention with a working population using a randomised control design. The findings of this study offer promising evidence to support a relatively short, entirely self-guided online intervention as an effective and accessible option to increase self-compassion and mental wellbeing as well as reduce stress and burnout in healthcare professionals operating in a demanding environment and challenging landscape.

Programmes such as the Self-Compassion at Work Programme, delivered as an online four-week intervention, could provide an affordable and scalable approach for organisations looking to enable large numbers of staff to foster their self-compassion as part of a wider organisational strategy to stay healthy and well in work. Future research to build on our understanding of the development of self-compassion in the workplace would benefit from objective measurements, over a longer follow up period, using an active control condition across a range of workplace settings.

There is a growing understanding that self-compassion is a flexible construct that can be imparted through evidence-based training interventions (Ferrari et al., 2019), such as the one described and tested in this study. Thus, suggesting that healthcare professionals can be taught and equipped to cope with the inevitable difficulties they will experience in the workplace whilst maintaining their health and wellbeing. Given the adversity being experienced in the NHS in the current climate, self-compassion development interventions for staff may provide a small but significant support mechanism in the workplace.

Supplementary Table 1. Quality assessment of present study based on Snape et al.'s (2017) Checklist

1. Was the evaluation well-designed?	2. Was the study carried out appropriately?	3. Was analysis appropriate?	4. Is the evidence consistent?	5. Have ethical issues been taken into consideration	6. Contribution of the research
✓ Fidelity of delivery clear	✓ Measures appropriate for ITT	✓ Same measures for all	✓ Assignment to treatment/Random assignment	✓ Comparison/ intervention	✓ Representative sample
✓ Baseline equivalence	✓ Sample size large enough	✓ Attrition less than 65%	✓ Attrition clear	✓ Attrition assessed/reported	✓ Contamination controlled
✓ Consistent and equivalent	✓ Measures valid & reliable	✓ Measures indept of treat	✓ Measures not just self-rept	✓ Analysis methods appropriate	✓ Missing data appropriately treated
✓ Findings made explicit	✓ Evidence for and against	✓ Credibility discussed	✓ Findings related to RQs	✓ Sufficient details of how research explained to	✓ Researcher discussed issues raised by study
✓ Adequate discussion of issues such as informed	✓ Consequences of research considered	✓ Approval from an ethics committee	✓ Contribution to existing knowledge or understanding		
Total score					28

NB a blank cell in this table means that the present study did not meet this criteria

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Reflective Process Review

The aim of the process is to demonstrate your personal growth and development; and to document the cognitive processes and justifications that you have made at each stage of the process.

Scoping out your research idea

What challenges did you face and how did you overcome them?

Early October 2017: On reflection I have been covering some of the background work for this piece of research for a number of years so tightening the scope may be a challenge going forward. Having conducted a number of initial literature searches in the databases, there is a paucity of relevant literature pertaining to the specific topic of Self-Compassionate Leadership, in fact there is none. In the meantime, I have developed a mind map covering the key areas I think relate to the topic and I am open to the possibility that this area is pre-zeitgeist and hasn't yet received the attention from researchers that it may (or may not) deserve and I would like to press on. In the last few weeks I have performed some initial searches and organised the journal articles I have been collecting for the last couple of years (both electronically and hard copy) into some semblance of order. I have also printed off all the relevant documents and created an excel spreadsheet to populate with the articles I have already collected and read. I have printed some recommended documents pertaining to performing systematic reviews. I have created a working title for the research which I will check out with my colleagues.

Mid-October 2017: The meeting in October with the cohort was really good for me. I felt that I am in the right place and doing the right thing with this course. It was inspiring to hear the upgrade presentations from the

previous cohort and consider the difference each of them is trying to make with their research. I very much hope to do the same with mine.

I have now had an hour on skype with the library and this has enabled me to conduct an initial trawl of the literature on various databases (ABI/EBSCO/OVID/Web of Science) and although I haven't looked at the results of the searches in detail yet and their numbers vary dramatically depending on the search terms and database employed. I have made a list in a word document to detail the numbers of articles in the databases employing the various search terms called initial search strategy. I have made a time and date with my supervisor this week to discuss if I am on the right track.

Late-October 2017: I am concerned at the lack of academic literature pertaining to self-compassionate leadership but have been buoyed recently by discussing this approach in practice (with peers, clinical psychologist colleague, an American academic who is at the forefront of research into compassion in organisations, and potential clients). I believe that there is more of this work happening in practice than in theory/academia/journal articles. I would still like to bridge this gap. I am convinced that self-compassion development is an important precursor to developing compassionate leadership (towards others) and embedding this approach organisationally. Unless we have self-awareness and some insight into our own suffering and the ways we might accept and potentially relieve this, how can we do this for others in an authentic or sustainable way? I am concerned that developing compassionate leadership without a focus initially on self-compassion just makes it another tick box exercise that doesn't equip people to deal with their own challenges in the first instance. I feel like I am living and breathing self-compassion in practice at work and in trying to get to grips with the literature.

I have been mulling over whether to suggest to my PD peers that I would be willing and interested in convening on GOTO meeting in November to have a discussion about progress and how to perform the searches and use ref works etc. I get so much from other peer support groups I belong to and think that it would enable us to support each other even if it's just with the technology we have to be able to use proficiently. I can at least offer to convene a meeting if others are interested. Maybe I will pop something on whats app in the next few days and gauge interest.

November 2017: Supervision sessions have helped to focus my thinking around the areas I might like to consider – how to develop an academic case for self-compassion in the workplace and why this might be beneficial to a working population. I am moving away from the concept of compassionate leadership and going back to basics with self-compassion in the workplace and how it may be developed.

December 2017: Had a great session in Kingston and we were introduced to another member of the team, who will act as third supervisor if we are going to be employing qualitative research methods, I think that I may like to conduct my research using qualitative methods as this will give the data richness and depth. Although I would ideally like to use a mixed methods approach as the quantitative appeals to me too. It will very much depend on what the literature tends to use in the research area. I foresee employing the use of interviews or even online focus groups to drill down into self-compassion at work (although, I would like to know what the subjects scores are on the SCS and their demographic details – so this will bring some quantitative data, albeit the demographics as descriptive stats) is it of benefit in the workplace and how is it best cultivated for employees. Does this impact on their perceived health and wellbeing? What are the best interventions to develop self-compassion at work that

are also appealing to organisations and prove return on investment to objective outcome measures?

Did your initial idea change during this stage? If so, how and why?

January 2018: I have decided to focus on the generic construct of self-compassion and its relevance to a working population as much of the previous research in this area is focused on the health and clinical psychology aspects and almost solely on the healthcare profession if employees are recruited as subjects. I have started my SLR protocol which I hope will inform my research going forward.

April 2018: Originally this review had hoped to consider all the evidence for a self-compassionate approach in the workplace. However, the author in conjunction with two supervisory occupational psychologists, decided on reflection that this approach was too broad and to therefore narrow the inclusion and exclusion criteria to concentrate on intervention studies only. With support from my supervisors, I decided to take a less generic approach and tighten my inclusion and exclusion criteria so that I am solely focusing on interventions that aimed to develop self-compassion at work. This then helped the process to be less unwieldy in terms of focus and numbers of papers, as well as clarified my thinking. I have to do what is reasonably appropriate for a Professional Doctorate rather than aiming for a PhD in the same timescale and giving myself an achievable amount of work.

How did this process differ from your expectations?

April 2018: Having designed and delivered iterative compassionate coaching programmes into organisations for the last couple of years and being familiar with the key literature, I thought this would be an advantage. I have in

actual fact found it challenging to step back from such familiar territory with fresh eyes and recognise the key elements. I have been asked to write and present numerous times on the subject of developing self-compassion in the workplace and although this has been based on evidence, I have had the freedom to bring my own emphasis. I have had to step back and assume a neutral position to the subject of self-compassion at work.

What were your key learnings from this stage?

April 2018: Remain as open minded and as neutral as possible. If there is evidence that does not support your work/view on a subject, don't take this personally. View it with interest as to how it can deepen my own understanding of the theory and practice. Keep ensuring all psychological interventions are based on evidence and keep thoroughly evaluating every piece of work I undertake.

What would you do differently if you were to go through this process again?

April 2018: I was very clear from the start that I wanted to undertake this doctoral programme to gain greater clarity and understanding in what I consider my specialist area. As this subject has such resonance for me in my own personal and professional development journey, it has been great to keep pinning my sail to the mast. I think I would have had lower expectations at the start as to the size of the area I was hoping to tackle and been more realistic as to what can be achieved in both the context and timescale available.

The Systematic Review: Developing a protocol

What challenges did you face and how did you overcome them?

January 2018: It was harder than I expected as I feel too close at times to the subject area and can't always view it from a wider perspective. Supervision sessions greatly assisted with this. I developed an initial protocol following the session at Kingston in Dec 2017 and sent this in its raw form to my supervisors, this basically threw everything at it. Following a challenging session with a supervisor and reading her feedback enabled me to pare everything back and go back to basics – asking what is the evidence for self-compassion at work? Remove health and wellbeing aspects from the search terms as this would skew the data from the literature search towards those outcomes, step back and see what outcomes have been found. I also anticipated more evidence than there is currently available but feel confident now that asking this key question, in simple terms, will pave the way for bringing key evidence together.

How did this process differ from your expectations/plan?

January 2018: I thought the process may be more linear, however, I did go back and forth a few times before I felt confident in my search terms (with assistance from my supervisor). I thought there would be more evidence available in the key databases generally used in systematic reviews, but the subject area is too immature for this to be the case, this did not reflect my initial expectations.

What were your key learnings from this stage?

January 2018: Try to put my own knowledge and experience to the side and view everything with fresh eyes and no expectations. Be careful what you wish for – I couldn't wait to gain access to the online library and search for all the relevant papers – only to find that the subject of self-compassion is in such relative infancy that there was very little to find. This was a surprise and disappointment to me.

What would you do differently if you were to go about developing a protocol again?

Have a clearer understanding of the antecedents to the subject area so that developing the rationale is more straightforward. I like to go through well-defined steps and found myself overwhelmed at times with the number of directions and information I could include, keep it simple would be my approach if I were to do this again.

The Systematic Review: Conducting searches**How did you come to a decision on the keywords, databases and inclusion/exclusion criteria to use?**

January 2018: I started with a very long list of search terms in three columns (derived from looking at the key academic papers in the subject area and listing the keywords employed). Following a supervision call, I reduced this to two columns which felt both more manageable and realistic in terms of available and relevant evidence. I performed an initial trawl through all relevant databases and google scholar and listed numbers of returns for each combination of terms. This enabled me to see which databases were the most relevant, although at this stage no

decisions have been made regarding the databases.

February 2018: Following the session at Kingston with the librarian I realised that I required more one to one assistance so made an appointment with the main librarian to have a skype call in February. This call was pre-empted by an email I sent outlining clearly my search terms and the databases I thought may elicit decent numbers of studies. The call with the librarian was extremely fruitful as we ran through each search on each database in real time and I made copious amounts of notes as well as gaining clarity as to how to export the search results to the new Refworks. Following the call, I independently undertook each of the searches and exported the resultant outputs into Refworks. I went on to remove duplicates and felt like it was a great achievement to have a list of 452 titles as a starting point.

What challenges did you face and how did you overcome them?

February 2018: Keeping up to date with the new evidence being published all the time. I set up google scholar alerts to my inbox (self-compassion AND work; self-compassion AND wellbeing; self-compassion AND work AND wellbeing; self-compassion AND employees) which is very helpful and has brought new evidence to my attention as it is published. The key challenge was knowing how to understand the variance of the databases and how to search accurately in each using the same search terms. This was overcome with the kind assistance of the main librarian who was willing to show me how to conduct each of the searches, which I was then able to complete immediately afterwards following the notes and exact requirements I had listed during the call. The key for me is recognising that there will be aspects of any project that my knowledge and experience is limited and to ask for

help from the appropriate person.
How did this process differ from your expectations/plan?
March 2018: As previously mentioned, the paucity of reference in the literature to self-compassion at work was a concern when I realised the extent of the gap in the literature, however, I have since come to understand that there is evidence out there, albeit relatively limited compared to other subject areas, and this was actually of benefit as it meant that I wasn't wading through thousands of titles during the sifting process.
What were your key learnings from this stage?
Having passion for your subject area is both helpful and a hindrance! There is more evidence available when you know where and how to conduct an accurate searches. The new version of Refworks was fairly straightforward to use with some practice. Again, I am appreciating that if I take everything one small step at a time, eventually I will climb the mountain and to break everything down into manageable parts. To ask others for help when required.
What would you do differently if you were to go about conducting systematic searches again?
I would keep my expectations to a minimum, in terms of what I may find and how competent I need to initially be in terms of using the required software. I have developed a more accepting view of myself and my abilities when it comes to IT and realised that maybe I am more able than I give myself credit for much of the time. If I was to do this again, I would be clearer from the start and keep a narrower focus i.e. on interventions that develop self-

compassion for example rather than hoping to cover every aspect of self-compassion at work in the published literature. However, the benefit of taking a broad, then a narrower approach, helped me to understand the topic more fully. The papers that have not met the inclusion criteria in the final stages, have been indeed helpful to consider and may form part of the basis upon which I conduct my own research later.

The Systematic Review: Assimilation and write up

How did you come to a decision on the way to cluster the data and tell the story? How did you make the choice of target journal?

March 2018: By considering previous systematic literature reviews from the top journals and trying to emulate these. By reading Briner and Denyer (2012) many times and the guidance provided by my supervisors both in email contact, documents provided on the programme and supervision calls.

July 2018: Write up: I completed an almost full draft (13k+ words) that I submitted for review from my supervisors in July, the feedback, whilst overall was positive, there were a number of additions that needed further consideration, the results of the studies and if these needed to all be presented in the same format (i.e. Cohen's d to be comparable), whether I should be reporting the outcomes of all the measures that the k12 studies included above and beyond the Self-Compassion Scale measure from each study (this would mean the results section needs a complete overhaul and additional synthesis of the outcomes, also this would require conversion to Cohen's d). Furthermore, the discussion section needed to be reconsidered as it needed greater clarity and putting into more definable sections. I reviewed other SLRs recognising these were much more succinct and had a greater

amount of clarity. In terms of timescale, I am having to leave the SLR for the summer 2018 to concentrate on getting the research proposal reworked. I need to be able to more clearly justify my approach and I need to get the study underway due to the sector challenges of conducting research over the winter pressure months which may leave periods of time dormant within which I can try and conclude the SLR revisions required to proceed.

December 2018: I am in the final stages of pulling together the SLR, based on supervisor feedback and further research I have undertaken considering the k12. I rewrote the entire SLR and have submitted for review from supervisors. There are still sections of the discussion and limitations to remove as the sections are too lengthy and aren't clear enough as to the key points I am trying to make. I have undertaken the quality assurance with the assistance of a research associate and have entered all the data (both numerical and narrative into the final piece). This was a useful exercise in terms of considering the quality of the data presented in the k12, unsurprisingly the RCT's scored more strongly which has supported the ideas I have for how I can ensure the highest quality rating possible (using Snape et al.'s guidelines for quantitative studies) when I am conducting my own research. It has been challenging to offer a highly critiqued discussion section, but I am also very aware of the evidence and to what degree this approach within interventions is supported. I await feedback from supervisors in terms of final changes to SLR draft and hope to submit before Xmas. I have had some very positive feedback and a suggestion from one of my supervisors that we try to gain publication in a 2-star journal which is very encouraging.

Mid-Dec 2018: Supervisor confirmed that the SLR was at an acceptable level for the doctorate and would be considered in terms of revision for journal submission.

What challenges did you face and how did you overcome them?

May 2018: I found the lack of very specific and detailed guidelines for the sifting process challenging, I prefer very clearly defined ways of working. I overcame this by questioning my supervisors to gain greater clarity regarding the process and they very patiently guided me through the process. I have made the suggestion that this stage could be given a checklist document to assist but I understand that this element will vary for all participants on the programme.

Although I have attempted to use previous SLRs considering interventions as guides, I was still a little unsure as to whether my narrative was being scoped out correctly, so I emailed the draft to my supervisors. I also had a first attempt at compiling a draft of the method section in full including the flow chart I had previously pulled together during the search process and the inclusion and exclusion criteria, as well as all the subheadings I am hoping to employ in the final piece. The response was overwhelmingly positive from my supervisor and has spurred me on to keep going, one section and one subheading at a time. This process has also helped me to recognise that the data extraction needs a little more work and to extract more information from the final 12 studies.

Taking a very methodological approach to the process is helping and keeping clear to do lists for each stage gives me small but meaningful goals to work towards. Also dedicating every evening and at least one day at weekends has helped me progress this far, recognising that hard work and persistence as well as missing more enjoyable aspects of life for the want of gaining and maintaining traction in goals I have set myself, is rewarding and worthwhile. A small sense of achievement each time I do further work on the SLR, never allowing the room for

procrastination and making sure I give myself rewards such as a day off are beneficial to maintaining momentum.

I recognise that much of this work has taken me out of my comfort zone and that this is a good thing in terms of personal and professional development. I am learning to approach each element with more of a 'can do' attitude. Also, I am making no comparisons of my work, quality or quantity, with others.

I am looking forward to meeting up with the cohort again in June and comparing notes in terms of progress and learning.

July 2018: Write up: The initial write up in draft form was forwarded to my supervisors for feedback in July 2018. Although the feedback was positive in terms of what I had achieved – there was a significant amount of critique to manage (to consciously not take this personally) and to allow myself the time to reflect and keep momentum going. A pause for further write up is now required as my task to get underway with the research is more pressing due to the time constraints involved. I am pleased that I have got to this point and that I have a raft of critical feedback to enable me to improve the final version. If I did anything differently, I would have tried to have use sub-headings more in the discussion section and be clearer from the start that I would need to report on all the outcomes found in the k12 studies included in the SLR.

December 2018: The final write up: Writing, rewriting and editing has been challenging in terms of the amount of time it has taken. I wasn't surprised by this as I found the editing experience when I wrote my book also a challenge. I have also found the conversions into Cohen's d , understanding some of the dense representation of findings in the k12 and having to include a range of additional outcome measures somewhat challenging. I have asked for support from supervisors and received it and continued to work hard and put in the time required and it

is great to see the whole piece coming together.

How did this process differ from your expectations/plan?

May 2018: I enjoyed extracting the data more than I thought I would! I like working to a very clearly defined process and the underpinnings of conducting a systematic literature review appeal to this organised tendency! I expected the sifting process to be clearer and struggled a bit at this stage (see above) but appreciate that the screening process is a bit of a moving feast and will be different for everyone so providing specific guidelines for this stage may be challenging.

I am applying a clearly defined to do list at each stage, asking for help, also trying to conduct my own searches for assistance i.e. in assessing the quality criteria and asking for feedback from my supervisors in the interim is probably different than I expected. I am used to working alone and have designed and developed the programmes I deliver as a sole practitioner, only receiving feedback in the evaluation stages from participants and repeat commissions as feedback as to the difference the programme makes to individuals in terms of developing their self-compassion at work. I guess this approach is more similar to conducting the SLR than I had appreciated, that I am driven by feedback and will adapt, and flex accordingly based on the view of more knowledgeable others.

July 2018: Write up: I didn't appreciate the time involved in writing up the SLR once the data extraction and synthesis was complete. The latter sections took a number of months and then needed rewriting/reworking considerably. Also, the outcomes were challenging and not being a natural statistician, has felt like a hinderance in terms of understanding the different ways in which the k12 reported their outcomes.

December 2018: Final write up: The quality assurance aspect was less time consuming and less difficult than I expected and I enjoyed working with another research associate on it who had insight into the k12. I didn't expect that I could write a piece that may be eligible for publication in a peer reviewed journal.

June 2019: Unfortunately, the SLR was not revised in time for an attempt to submit it to a journal, so this opportunity to have an independent peer review prior to submission was missed sadly. However, I do hope that once the thesis is submitted, this option can be considered again.

What were your key learnings from this stage?

July 2018: Trust myself more and my ability to stick to task regardless of challenges. Take each small step at a time and apply the key remark from a previous participant "this PD is as hard as you make it" to remind myself that it doesn't have to be perfect but good enough (as long as my supervisors agree!) is ok.

Write up: Time involved and methodical approach helpful but not necessarily the best way to write in an interesting and engaging way.

December 2018: Have more confidence in my ability and tenacity to not give up and keep trying my best. Put everything on hold – including paid work and personal life where possible as there isn't time for everything. Have a nice office that you don't mind spending 15 hours a day in!

What would you do differently if you were to go about writing up again?

July 2018: Make a plan for the write up sooner to ensure all the data extraction clearly corresponded with the sub-

headings in the narrative, so less time wasted and more clarity from the start. Try not to be overwhelmed by previous SLRs as when these are broken down into their key components it is less worrying and unlikely that I can't replicate something similar. Try to be more self-assured and realise that statistics (and their understanding in their minutiae) are not the be all and end all of understanding.

Write up: Ask for more specific feedback sooner so that the results and discussion don't overlap so much.

December 2018: Have more confidence in myself and higher expectations of myself, in that every challenge that has come along (and there have been many) can be overcome with hard work and perseverance.

Research Study: Design

How did you come to a decision on the study/studies you were going to undertake?

July 2018: This has been a challenging process. I am torn between an RCT looking at an aspect of a programme I deliver and a qualitative analysis using a repeated measure design of the whole programme I currently deliver to develop self-compassionate leadership in the workplace. Although I have put an initial draft of the proposal forward for feedback, clearer justification is required on the RCT. I am still hesitant based on my lack of statistical ability and whether I am biting off more than I can chew in the very limited timeframe given and the pressure from a healthcare organisation who is not keen to conduct any form of research during key winter pressure months. I am going to ask for a phone call to discuss with my supervisors as I need to ensure that I am clear in what I can feasibly achieve. On the plus side, an initial gauge of interest from three large acute NHS trusts

resulted in all three wanting to be involved in providing a sample.

September 2018: I have decided to further develop a brief online intervention that provides a full grounding in the theory and practice of self-compassion to see if this can have an effect on self-compassion, mental wellbeing, stress and burnout in healthcare professionals. This will enable me to understand if some of the gaps identified in the SLR and suggestions for further research can have any benefit in a population (Healthcare Professionals) that forms the majority of the samples of a working population in the literature. It is also a sample that I know well, have worked with for the last 15 years and have a number of contacts with, in terms of working relationships and potential interest in provision of a sample.

December 2018: I have successfully recruited over 200 healthcare professionals from 5 NHS Trusts to take part in the study (from 424 showing initial interest). Running a pilot study was very useful in terms of what works and what doesn't, I recorded all the webinars again to improve them further, removed various process aspects and saw an increase in self-compassion and mental wellbeing from pre- to post intervention in the representative sample. An RCT is the aim and I am doing all I can to ensure the quality assurance will be strong. I have reviewed Snape et al.'s (2017) checklist for quantitative studies and have started to ensure I am ticking as many of the boxes in terms of quality assurance as possible from the outset.

February 2019: In total, 230 participants came through eligibility screening and informed consent to take part in the study. I am a little concerned regarding attrition due to the online aspect of the programme and ensuring there are enough subjects for appropriately powered statistical tests but there are 110 participants in the intervention group and 80 in the waitlist control. The design changed slightly based on feedback from third

supervisor in January 2019, which now means that the WLC complete the questionnaire three times before receiving the programme. I have therefore reworded the correspondence to them to show appreciation for the onerous nature of the number of questionnaires. Although the actual time Qualtrics advises in terms of completion is 7 minutes, I have advised 10-15 in correspondence, so hopefully this will help them remain in the study.

Why did you decide to use the particular methodology/analytical process?

July 2018: I might have liked to have undertaken a repeated measures mixed methods study, using the 2 outcomes measures I currently use as standard with the programme I have designed and deliver (Self-Compassion Scale and Warwick-Edinburgh Mental Well-Being Scale) plus a detailed questionnaire (as I use this as standard for evaluation) and maybe a few semi-structured interviews or a questionnaire to the participants' line managers and direct reports as there is very little in terms of performance outcomes reported in the studies I have seen to date. I am still questioning the approach and the overall design.

December 2018: The pilot helped to forge this idea and, recognising the limitations from the k12 from the SLR including weaknesses in terms of quality assurance, made it clear that a quantitative study would be the way to robustly test if this approach is helpful to staff. Also, most intervention studies of high quality use an RCT approach.

February 2019: I conducted a Quality assurance with the RCT design, and this gave a stronger score than any of the k12 from the SLR, which is reassuring. I will include the QA in the final write up as well. I want to ensure that the intervention holds weight against the control group, although all things considered it may have been of value

to further consider the waitlist undertaking a different exercise as an active control. However, when considering the literature in this area and recognising that the present study is looking to test a novel intervention in an emergent area of research, a waitlist control enabled an absolute effect rather than the relative effect an active control would provide. I would also question using an active control when I am committed to developing self-compassion in the workplace and potentially denying participants the opportunity to undertake the most comprehensive programme I have designed to date. Also, an active control would have changed the way the study was advertised, and the recruitment had already been undertaken by the time this possibility was considered in more detail.

What challenges did you face in the design process and how did you overcome them?

July 2018: The main challenge is deciding what to do in the time available and within the parameters defined by the Professional Doctorate process as well as the organisations I will be working with. I suspect that all three organisations will be happy to provide a sample regardless of the design as they are getting the benefit of the programme for no fee. I am still at the drawing board stage in terms of trying to please everyone, including my supervisors, but questioning the cost to myself in terms of ability to deliver in the timescale.

December 2018: Having decided to deliver an online study has enabled me to prepare the study documents in advance and have everything lined up ready to go in January 2019. I have also managed all the recruitment including eligibility and informed consent through email rather than in the first questionnaire and I am pleased I did this to ensure it is correct and have time to get prepared although it has been very time consuming. The design of the intervention in the end is being called for in the research – how can we offer the benefit of this

approach with fewer in person hours, for busy professionals and could also be delivered at scale across organisations at a low fixed fee per head.

I didn't anticipate having to get ethics approval from all the NHS organisations taking part which took additional negotiating time, but it was agreed. In the end, ensuring that the intervention was something I felt able to deliver in the timescale and having faith that it could be beneficial to the staff who are motivated to sign up and how it may help them, regardless of pressures from organisations in terms of timing during peak periods.

February 2019: In terms of study design, I should have sought the advice of a quantitative third supervisor before I went to recruitment so that I could have advised participants more clearly that they may have to complete up to 4 questionnaires rather than 3. The WLC will complete 4 in total due to advice received from third supervisor, but I am hopeful that this will be ok. I would have liked to have planned for this more to ensure that the design would be robust for the analysis to take place. I also would have liked to consider the possibility of using an active control further rather than waitlist as this would have shortened the process for the participants and the WLC wouldn't have had to complete the same questionnaire three times before receiving the programme. However, the data will be robust in terms of analysis and that is critical going forward in terms of the efficacy of the Self-Compassion at Work Programme and I am pleased with the final design agreed.

How did this process differ from your expectations/plan?

December 2018: The pilot went as planned and I had about 50% attrition, therefore signing up as many people as possible for the study has been critical to ensure enough statistical power in the final data sets.

I should not have made working more than 30 hours a week an eligibility criteria for the study proper as this has reduced the sample and I have had to answer many individual emails about this which has been time consuming and possibly lost me willing subjects. This eligibility criteria came from a previous study and I had assumed that full time staff may be more stressed and burned out from their role. This assumption has limited supportive evidence, although there is some, however this was an oversight on my part.

February 2019: I should have proactively sought the input from a third supervisor at an earlier stage to ensure that the study design was robust prior to recruitment. I would have also further considered a control group that undertook a related exercise (i.e. kept a diary of their self-compassion practice) to provide an active control group instead. Although the evidence to support this approach is mixed. Also, the third supervisor's advice rightly mentioned that the participants were asked to undergo an intervention that could improve their health and wellbeing and this may bias the findings due to the suggestion, due to only using self-report measures. In retrospect, I might not have been so specific regarding the potential benefits of the programme.

Furthermore, as I haven't advised the intervention group that they will be questioned twice after completing the programme so they will stop at T3, even though 2/3 months follow up would be preferable. I was advised by the third supervisor of the need to consider the Hawthorne effect and how only allowing a one month follow up reduces the suggestion of a sustained effect, however the timeframe in which the study is being conducted cannot be extended and is tight in terms of extending follow up effects. There is the possibility that instead of Intervention group doing T3 at one month follow up they do it a T4 which would be 2 months follow up but they have already been advised of the dates the questionnaires will be sent and been asked to diary time to complete

these. Therefore, I don't want to change key dates for them at this stage although I will discuss in my next supervision session due to take place in March.

Late-February 2019: I became a little concerned about attrition from the intervention group in week three as it was looking like in week 1, 75% had registered for the webinar, and in week 2 this had dropped to 47%. I asked for interim support from my supervisors on this. I had already decided to send a reminder email on the Friday of week one and week two which had helped a little. In week three I sent a name addressed email to totally non-responding participants work and personal email addresses to offer support and advise them that it wasn't too late to catch up with the webinars and that if they could complete at least two then they may benefit and would be able to complete the questionnaire and evaluation that will be sent to them on 4th March. I also, reworded the reminder email on the Friday of week 3 that went to all intervention participants, informing them that they could catch up although the programme was nearing an end and thanking them for taking a place on the programme. This seems to have helped a little, as at the end of week three the % of the webinars that have been registered for is 81% (week one), 56% (week two) and 34% (week three). I have drafted an email to send to all participants who only registered for week one which I will send out in a named email early in week 4.

April 2019: I decided not to ask the intervention group to complete a further questionnaire at T4. I have been assured by my supervisor that the design is robust as it is, and this additional data will not contribute to the hypotheses. I had to work hard to get the intervention group to return their T3 questionnaires, however this resulted in 54 completing at all three timepoints which is a retention rate of 49% for the intervention group. From T1-T3 n=114 across both groups equating to a 60% retention rate overall. At (T2), 67.4% of participants

remained in both the intervention and waitlist control groups. This was a higher % retention than in comparable similar online intervention studies (i.e. 44% remaining at post-test in Halamova et al. (2018) and 54% remaining at post-test in Finlay-Jones et al. (2017) which is positive.

What were your key learnings from this stage?

December 2018: To be open to changing things that didn't work and to conduct a pilot with a small group who attend voluntarily rather than asked by their manager. I hope for a lower attrition rate in the study than the pilot as everyone has expressed an interest, read all the information and provided their agreement and informed consent, this is slightly different from the pilot.

February 2019: To not have placed limitations on eligibility to increase sample size and reduce concern regarding attrition. To have asked more clearly for clarification on study design and sought out advice from third supervisor earlier.

April 2019: To have anticipated the amount of email correspondence required to encourage participants to complete the questionnaires and evaluations. To have specifically asked in the evaluation about the amount of time spent in home practice above and beyond the diary and key task each week.

Research Study: Gathering data

How did you go about gathering data and accessing participants? Why did you choose this route?

July 2018: Inadvertently, as I was so concerned that I wouldn't have a sample large enough for an RCT, I prematurely contacted three large organisations who I have worked with previously and put together a flyer outlining the webinar only programme. All three came back as interested in providing a sample. One came back and said they would advertise the study amongst all their previous internal leadership development participants in the trust (over 200 people) and would hope that at least half of these would volunteer. I would be keen to work with just one organisation rather than a number to keep the process simple. If I change the design and intervention I will employ, I could still try and work with just one of the organisations on this study.

December 2018: I am glad that I went with 5 organisations in the end, as some have provided many more participants than others. In fact, a late adopter actually provided the majority of the sample, although this was last minute. It has been interesting to see the difference in expressions of interest from different Trusts and unexpectedly mental health and community trusts have supplied the most participants. Accessing the sample hasn't been as challenging as I thought and there has been a huge amount of interest. The flyer was strong and people appear interested generally in anything that may help them manage in a challenging working environment. I chose to manage the recruitment myself which although has been challenging and time consuming, it has been something I could control and oversee fully.

April 2019: A limitation was the need to work over 30 hours in the eligibility screen, this discounted potential

participants from taking part and reduced the potential sample size.

What challenges did you face when gathering data/accessing participants and how did you overcome them?

December 2018: Challenges in terms of gaining ethics approval with all the trusts, but these were resolved by discussion. Also, one of the trusts applied for CPD approval from the Royal College of Physicians so that all their staff can gain one CPD credit for attending which was very positive. This was shared with the other Trusts so all could provide the credit to completing staff at the study's conclusion.

February 2019: A couple of challenges occurred with T1. Firstly, I missed four participants who had completed their eligibility screen and informed consent but realised before the questionnaire expired and sent it to them, 2 of 4 completed this, one person contacted me to say she didn't have time but wanted to do the programme so as a gesture of goodwill and as the mistake was solely my own (due to sheer volumes of emails I was dealing with during the early phase of the recruitment) I sent her the programme in full and excluded her from the study. It was brought to my attention by a participant that there was a typo in the questionnaire. I immediately rectified this and republished the questionnaire. 52 participants had completed to this point. I logged them all and discussed it in supervision. I have been advised to use a mean value for this item in the data analysis.

Late-February 2019: Concerned about attrition in the programme will be reflected in attrition with T2 and certainly T3. Having to hold my nerve a little and hope that the encouraging reminders are helpful in reminding people they have taken a place on a programme which I hope is of value.

April 2019: Main challenge was to encourage intervention participants to complete questionnaires in the 3-day timescale. I spent a lot of time sending reminder emails. I could have extended the return timescale, but I am aware that even when people are given a longer period to respond, this doesn't necessarily occur.

How did this process differ from your expectations/plan?

December 2018: It took longer than expected to gain confirmation from the Trusts that their staff could be approached to take part. This was more nerve wracking than I anticipated, although one very kind person from one of the trusts was very supportive and assisted me. The time involved in the recruitment, doing it properly and saving all the documents and logging all the participants has been challenging.

Using Qualtrics for the first time on such a large project has also posed challenges. I have managed this with support from a research associate and the Qualtrics helpline.

February 2019: I anticipated that I had taken a belt and braces approach however, I still made mistakes. I realised that this goes hand in hand with conducting research in the field. I didn't give myself a hard time, I made the changes, apologised openly and honestly, took responsibility and sought advice quickly and without fuss. I had asked 4 or 5 people to check the questionnaire including myself and none of us noticed the typo in the item. I realised that we all become a bit word blind at times. Next time I will do a more thorough line by line check to be more certain. I expected some attrition but am getting a little more than expected. I hope that I have enough data at T2 to conduct suitably powered statistical analysis.

April 2019: The time involved in running the study for the intervention group and encouraging questionnaire and

evaluation completion was very time consuming. I made an error with T3 WLC contact group in Qualtrics and needed to rectify this quickly. The weeks of questionnaire responding were stressful. I am relieved to have enough data to run the most robust statistical analyses.

May 2019: The study has concluded, and I have been lucky enough that 48 participants from the WLC completed the questionnaire at T4. The qualitative feedback received from the programme evaluation was overwhelmingly positive again from the WLC although this isn't due to be included in the write up, it is pleasing to see.

I am pleased that overall I retained 67.4% of participants at T2 (INT & WLC), 60% of participants at T3 (INT & WLC) and 53.7% of participants (INT & WLC) at all timepoints.

What were your key learnings from this stage?

February 2019: Ask clearly for quantitative expert assistance and more fully appreciate the need for the study design to be absolutely accurate before embarking on the recruitment stage. I should have specifically sought advice from a third supervisor at the proposal stage. Always recruit as many subjects as possible to account for inevitable attrition.

April 2019: Allocate time to encourage questionnaire completion, triple check everything going out via Qualtrics in precise detail, recognise if there is an issue and respond immediately (I did do this and was lucky enough to have a day available). Don't be too restrictive in the eligibility screen so as to reduce the possibility of declining any willing volunteers coming forward to take part in the study.

What would you do differently if you were going to begin this stage again, and why?

December 2018: Realise the sheer quantity of time involved and start earlier.

February 2019: Seek advice from third supervisor earlier and plan study design accordingly to ensure this is as robust as possible for the earliest stage and to avoid last minute changes for both myself and participants. Ensure questionnaire absolutely correct before going out to participants to avoid unnecessary errors. Recruit more subjects to reduce the attrition anxiety.

April 2019: Get a second pair of eyes on everything related to Qualtrics, schedule more time for questionnaire completion for both participants and myself. Not have included 30+ hours per week worked as an eligibility criteria.

Research Study: Analysing data**How did you go about analysing your data? Why did you choose this route?**

April 2019: Based on the protocol overseen by my supervisors and additional feedback from third supervisor a MANCOVA was recommended for H1 and repeated measures ANOVA for H2. I took advice regarding the best way to consider the data and based on the papers I read for the SLR and in the wider literature regarding intervention studies. Lloyd et al. (2017) and Querstret et al. (2017) conducted their analyses in a similar way so I used these as a guide.

May/June 2019: Having a change of third supervisor and seeking their advice prior to running the main statistical

analyses was critical. This supervisor made some changes to the hypotheses and subsequent analyses I was considering and, following her advice and feedback on a number of issues, this ensured that the analyses were as robust as possible.

Deciding, in conjunction with supervisors, that I would refrain from conducting mediation analysis due to the constraints of the doctorate programme. If the present study is considered for journal publication in the future, mediation analysis could be conducted at a later stage. Although the author recognises the benefit of this level of analysis, unfortunately the time limitations imposed by the Professional Doctorate programme and the author's capacity in the context of full-time work and a busy family life, denied the realistic opportunity to pursue this course of further analysis. I hope that the standard of the study presented could be said to provide sufficient findings to indicate initial support for the self-compassion at work intervention tested with a healthcare professional sample. This represents a significant achievement for the author.

What challenges did you face when analysing your data and how did you overcome them?

April 2019: A mistake in questionnaire at T1 which a number of participants completed before I rectified it. For these questionnaires a mean score was calculated on that item before analysis, if they had completed all measures at the time points. Sheer scale of data and amount of time raw data required to clean up for analyses to take place. Lack of confidence and recent knowledge and practice of SPSS and statistics but with support and additional reading managed this ok.

May/June 2019: Ensuring that I was conducting the correct analyses and ensuring all the preliminary analyses

were also conducted correctly. Seeking the advice and support of a third supervisor was critical at this stage and was the key to ensuring that the analyses were correctly selected and conducted.

How did this process differ from your expectations/plan?

April 2019: Complex analyses were required by the design which initially I hadn't anticipated but once the data was clean the actual analyses were fairly quick to execute. The data clean-up was more time intensive than I anticipated.

May 2019: I have been informed that my third supervisor has changed. I am hoping that she will advise if I have covered everything in the draft results section I sent to her to review before I run all the final analyses.

June 2019: A change of third supervisor was not in the plan, however, I was grateful for my third supervisor's advice and suggestions, she enabled me to have confidence in the analyses I conducted. I feel lucky that my supervisors were able to organise a replacement third supervisor so swiftly and that she is so thorough and supportive.

What were your key learnings from this stage?

April 2019: Take it each stage at a time, make sure each stage is completed in full, read other studies using similar statistical analyses avidly, go back to the textbooks (SPSS). Ask for assistance when required by people more knowledgeable in terms of statistical analyses.

What would you do differently if you were going to begin this stage again, and why?

April 2019: I would ensure no mistakes were made in the questionnaire, I would have recruited more subjects, I would have sought advice on the most robust form of analyses earlier from a third supervisor so would have been more prepared and allocated more time to clean and code the data.

Research Study: Writing up**What challenges did you face when gathering writing up your study and how did you overcome them?**

February 2019: I found it difficult to get going with the write up. I had a strong feeling that I wanted to conduct the study first and then write it up, but I realise that there isn't the time to do this. I am aiming to have at least an early draft of my introduction and method sections before the end of March 2019.

April 2019: I managed to get an initial draft of the introduction and method section written in March which was critiqued by my supervisor in early April and I made all the recommended changes and additions in April and returned for approval. I managed an initial draft of my results section – with no actual results – to be clear on what I wanted to include in the final write up. I got a note form draft of my discussion, limitations and conclusion written in March which I am adding to as I go along.

I have reviewed the QA again and made additional notes to ensure I write up accordingly and that all the aspects I hoped to cover are there. I feel better now I have started the write up and received feedback on it. I also felt better pulling together a schedule of everything I need to complete prior to submission in September 2019 with a

monthly action plan to remain on track and shared this with my supervisors who have offered their support at the key times.

June 2019: The results took twice as long to complete than I expected in my schedule, this was due to changes suggested by a new third supervisor which had a knock on effect in terms of the write up for the discussion and limitations, although I had drafted the outline of these in advance which I hope will be helpful going forward.

July 2019: The discussion, limitations and implications for future theory and practice took longer than anticipated to write up. I sent a very detailed draft to my supervisor in mid-July 2019, made the suggested revisions which included reducing the word count and detail. I am hopeful that the standard is high for the study write up.

How did this process differ from your expectations/plan?

April 2019: I knew there would be a lot of ground to cover so this wasn't a surprise, but my knowledge of the literature helped and having completed the SLR first was very useful too. The study will be written up in the manner of a published study, so the sections feel a bit shorter than in the SLR and they feel more familiar due to the amount of reading of published articles over the last eighteen months. I didn't appreciate the degree to which the study is self-directed but my organisation skills and attention to detail have been helpful to stay on track for submission. I am hopeful that I can achieve my aims although I expect May, June and July to be particularly challenging.

May 2019: There has been a slight delay in the schedule waiting for feedback on my results and ensuring that I am covering everything due to change of third supervisor.

July 2019: Results took longer than anticipated and were changed but hopefully this was beneficial to the study overall. I didn't expect such positive results, so this was a pleasant surprise.

What were your key learnings from this stage?

April 2019: To have a schedule and action plan and get an initial draft going for each section was very beneficial and reduced my anxiety about meeting the timescale. It was right to start the write up when I did, as conducting the study for the intervention group was very time consuming and doing the two together would have put more pressure on me than was necessary.

To make sure that I have kept my supervisors informed of my actions at every stage and to keep ensuring that I have regular supervision sessions planned.

May 2019: A key learning is to ensure there is contingency time for delays in the schedule.

What would you do differently if you were going to begin this stage again, and why?

April 2019: I would have put a schedule together earlier so that I was clearer as to the time constraints earlier. I would factor in some contingency time, especially in regard to conducting the statistical analyses and writing up the results section.

June 2019: Seek advice and support at proposal stage from a third supervisor and continue to check in throughout the process, particularly before running any analyses.

Critiquing your own study

Introduction:	
How did your SLR provide the basis for your study?	Provided the latest evidence in the field in regard to developing self-compassion in the workplace and the variety of ways peer reviewed intervention studies have been conducted
How is your research unique and what will it add to the literature base?	At time of writing, no brief online explicitly focused self-compassion development intervention has been trialled and tested with a general healthcare professional population using an RCT design with follow up
From your SLR, what information regarding methods have you considered in the design of your study? What methods predominated? Were they the most appropriate? What was missing?	Repeated measures dominated, RCT only in 3 of 12 k12 studies so lacked robust appraisal. The differences in the quality appraisal/assurance showed these differences in study design markedly.
What has and hasn't been explored before empirically? Why might that be? Why are you in a position to explore these gaps?	No explicit face to face self-compassion development intervention employing an RCT with a working population has been explored empirically. New research

	published since shows one RCT with a sample of practicing psychologists using an online intervention (Eriksson et al., 2018). Gap with general healthcare professional sample. Work extensively with NHS organisations to develop self-compassion so I am in a position to explore this gap.
What alternative conclusions could you have drawn from your SLR in terms of opportunities for further research?	Conduct a face to face self-compassion development intervention following MSC with healthcare professionals using an RCT design so as to directly compare to the results of Neff and Germer (2013) who employed a general population sample.

Study Design:	
Why have you chosen this study design?	Most robust in terms of design – repeated measures would not have had enough veracity or efficacy in an emerging literature base
What other design could you have chosen to answer	Repeated measures – not robust enough

<p>your question and why was yours more appropriate? Please consider at least two alternatives and describe why you haven't progressed with these.</p>	<p>Active control – may provide a more conservative comparison and may provide an effect size itself so would have been more difficult to see the absolute effect of the novel intervention</p>
<p>If you have chosen measures, why did you choose them? List alternatives you considered and why they were rejected.</p>	<p>Based on measures used in k12 – all had been used in previous studies considering self-compassion development, stress, mental wellbeing and burnout with a healthcare professional sample. Also, I could access them readily and use them freely for research purposes. Alternative measures were not really considered in any depth – this may be a limitation.</p>
<p>What are the limitations of your study design?</p>	<p>Lack of qualitative data assessed using thematic analysis, lack of appraisal of underlying mechanisms that may mediate the development of self-compassion in a working population</p>
<p>How did you choose your recruitment strategy and why? What are the limitations of this approach?</p>	<p>A volunteer sample seemed the most straightforward however, the results may have been biased as a result of their motivation. The eligibility screen was possibly</p>

	<p>too strong and should not have referred to the number of hours worked – this stopped part time staff taking part and reduced the sample size as a result</p>
<p>How did you choose the number and type of participants and why is that appropriate?</p>	<p>I work regularly with healthcare professionals and am aware of the significant challenges they face in a time of austerity in the NHS with the need to make progress on compassionate care as outlined in a number of Government reports such as Francis (2013). The link between self-compassion and quality of care is still in the process of being established.</p> <p>The number of participants was driven by the potential for attrition based on previous online intervention studies and the need to have as many participants as possible to ensure the most robust statistical analyses could take place.</p>

Overall Doctoral Process	Reflecting on your doctorate, how do you feel you have developed (e.g. technical expertise, theoretical knowledge)?	Extensively developed in my theoretical knowledge base from exhaustive reading of the literature. Deeply considering every piece of consultancy work I undertake and how it relates not only to best practice but to a robust research evidence base. I feel more confident in my understanding of bringing self-compassion to a working population and the ways in which I can continue to do this as an advanced practitioner. I can now use Qualtrics, search databases, read a peer reviewed publication and understand all aspects of it including the statistical analyses as well as the empirical and design elements.
	Can you see any changes in your practices and/or professional plan as a result of undertaking this doctorate and associated learnings?	Absolutely, I wish to extend my practice and bring a self-compassionate approach to a working population in and beyond the healthcare sector to include other public sector organisations such as the police and fire services. I will undertake more speaking engagements as a result of undertaking the doctorate and look to raise wider awareness of the benefits developing self-compassion in the workplace may have on staff's health and wellbeing.
	What has been the most useful element	To really understand where the literature is up to in the field of self-compassion, to conduct a piece of empirical research, to push myself

	of the process for you?	beyond my own limited expectations of myself, to recognise my tenacity and ability to keep going even in the face of adversity knowing that I have the tools to cope. The supervision sessions over the phone and the constructive criticism on the narratives.
	What has been the most rewarding element of the process for you?	To contribute to the understanding of developing self-compassion for a working population – my entire career has been based on improving peoples' working lives and this has enabled me to continue on this path albeit in a more informed way. To embrace the opportunities this programme has given me in terms of learning, engaging with fellow practitioners, academics and the BPS. To face the challenges and practice self-compassion in my working life, which has assisted me immensely.
	What has been the most challenging element of the process for you?	The time commitment to get through this process in two years. The isolation the process inevitably brings due to the number of hours required sat in a small home office. The statistics and the language/jargon surrounding quantitative research. The limited amount of cohort peer engagement away from the face to face sessions.
	What has been the most frustrating	My own lack of skill in conducting research, even with attention to detail I still made some mistakes, my initial lack of understanding of the generic

	element of the process for you?	processes that drive a systematic literature review, both the expectation of attempting publication and then the lack of time in the schedule to attempt this and missing out on external peer review prior to thesis submission as a result.
	What would you tell someone beginning this process? What are the key things they should know/avoid/prepare for?	Be very clear on why you are undertaking this journey, be prepared to sacrifice in your working and personal life due to the time commitment and get a clear understanding of the processes you need to undertake for both the SLR and empirical study. Ensure you have an absolute dedication to your subject area, plan and plan again each aspect and arrange regular supervision sessions throughout the programme. Ensure every aspect of the study is checked in detail by a third supervisor who is a specialist in their field of analysis. Most of all, enjoy the opportunity to stretch yourself academically, embrace the scientific practitioner role and bring all your acquired knowledge to your work. Try practicing self-compassion throughout the ups and downs of the process, you may well find it helpful!

